MOTOR TREND

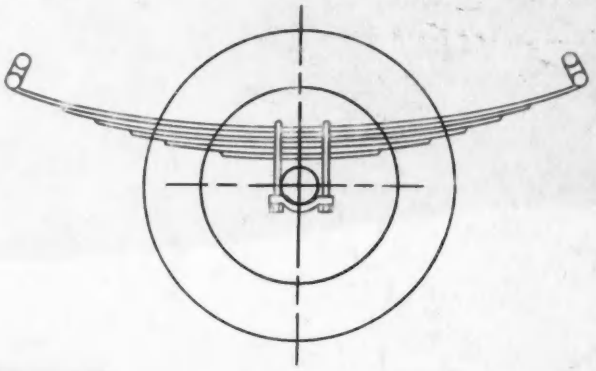
3 ROAD TESTS

WIN a Restorable Classic!

Whatever Happened To—?

DETROIT'S RIDE

What's wrong with it?
Will you next ride on air?
Are coil springs passé?



A down-to-earth analysis of torsion bars

Reading time: 3 minutes to learn how to

- **cut engine wear up to 38%**
- **prevent loss of power, compression**
- **save 15%-25% on oil . . . without ever changing your oil filter**

This Gadget is Worth $320,000,000

. . . and I Discovered it by Accident!

by Albert Wells

IT ALL STARTED the day I got the bill: $214.36 for an engine overhaul—and I had only 28,000 miles on the car!

I told my troubles to a neighbor—a lubrication engineer—told him how I'd always changed oil every 1500 miles, changed filters every 5,000 miles. His answer floored me.

"You've been wasting your money," he said. "We've spent millions developing oil additives that keep carbon, gum and abrasives from damaging your engine. Your oil costs about 15¢ more a quart because of those additives. Yet the rag or paper filter packs you've been buying actually remove oil additives. And the more often you change filter packs the more money it costs you."

"But don't I need a filter to take the oil impurities out of the oil?" I asked.

He took a deep breath. "This will really shock you. Engine damage is done by abrasives 10 to 40 microns in size (a micron is .000039″). Your oil filter can't take them out because rags or paper can't be packed tight enough without stopping oil flow when the fibers soak up oil and expand."

"What kind of oil filter do you recommend, then?"

He laughed, "Well, there's a porous bronze filter they're using in supersonic aircraft that does a perfect job. But you can't get one like that for your car."

I asked myself "Why not?" Next day, I tracked down the outfit that was making the filters for aircraft, and got the answer. These porous bronze filters were made by fusing together millions of tiny bronze balls. Non-absorbent, they didn't remove additives, yet they removed abrasives in the 10-to-40 micron danger zone. Could they be made for automobiles? Again, the answer floored me.

LIFETIME FILTER TESTED IN CARS, TRUCKS, BOATS

Test models had already been used in cars and trucks for millions of miles, proving the porous bronze filter: 1. Never needs replacing. 2. Saves the quart of oil thrown away with ordinary filter packs. 3. Increases engine life. Trouble was, almost the entire production was being absorbed by military and industrial users.

That day I went to work on the biggest job of my life: setting up production of the Lifetime porous bronze permanent filters for cars and trucks (an estimated $320,000,000 replacement industry).

HOW TO GET A LIFETIME FILTER FOR YOUR CAR

Try the Lifetime filter on your car for 2 weeks: if it isn't all I say, you get your money back; if you keep it, you're through buying filter packs—the Lifetime filter is guaranteed for 10 years, actually will last many times that long.

For complete unit, including case (fits any car), send make, year and model of your car and $12.95 (we pay shipping).

Conversion kit, which replaces your present filter pack with Lifetime bronze, is $6.95 for most cars (send make and number of present filter when ordering). Conversion kits for Buicks with hydraulic lifters and for cars with full flow systems: $13.95.

Or send only $2 deposit, pay C.O.D. charges on arrival. But do it today—don't waste another cent on filter pack replacements!

Complete Lifetime Filter; fits any car.

Lifetime Conversion Kit; replaces ordinary packs with permanent bronze element.

Permanent Filter Division, Dept. FM-7
CONTINENTAL MANUFACTURING CORP.
Washington Blvd. at Motor Ave., Culver City, Calif.

Ship ☐ complete unit ☐ conversion kit

Make, model, year of car:_____

Present filter make (if known)_____

I enclose ☐ $12.95 for complete unit ($18.95—chrome)
☐ $6.95 for conversion kit (full-flow, $13.95)
☐ $2.00 deposit; send C.O.D.

Name_____

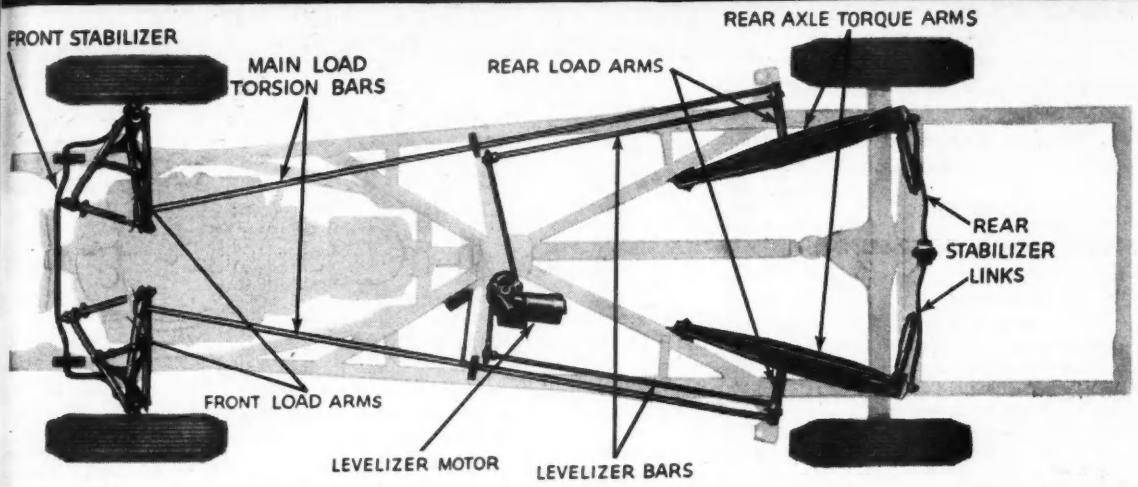
Address_____

City_____ Zone____ State_____

OPPORTUNITY FOR DEALERS AND DISTRIBUTORS

A dealer and distributor network is now being formed to handle demand generated by advertising and editorial features in national magazines. If you can qualify, you can be first with the most exciting automotive product of this decade to win new customers and build a substantial business. These valued franchises are not being sold; they are awarded on the basis of ability to grow with us. For complete details, write or wire Continental Manufacturing Corporation, Dept. FM-7, Washington Blvd. & Motor Avenue, Culver City, Calif.

GREATEST RIDE DEVELOPMENT IN AUTOMOTIVE HISTORY



Torsion Suspension has two long, torsionally flexible bars, four pivoting arms (called "load arms"), and four links. These support the frame and body.

The Levelizer (Compensator) has two short "levelizer" bars connected at one end by links and levers to a two-way motor with reduction gearing and at the other end to the rear of the main torsion bar load arms.

Rear Axle Mounting – Driving torque arms connect the rear axle housing to the frame. Side movement of the rear axle is controlled with two transverse stabilizer bars, allowing only true vertical axle movement.

NEW PACKARD
TORSION-LEVEL RIDE

A Sensational New System of Suspension Eliminates Conventional Coil and Leaf Springs

Smooths the Road...Levels the Load *Automatically*

HERE'S WHY the *new* Packard Torsion-Level suspension gives you comfort unequaled by any car on any road . . . whether super-smooth or rugged and rutted.

In other cars, twisting forces due to wheel shock are transmitted to the frame. You submit to resulting pitch and bounce, the car is subjected to wracking of frame and body. In the *new* Packard, these same twisting forces are transmitted along the new torsion bar system and absorbed *before* they can reach either frame or passengers.

Torsion suspension has two "main load" torsion bars running the full length of the frame on each side connecting a front and rear wheel and making them work as a team. Each "team" acts as a longitudinal stabilizer, reducing "pitch" and "dip" much as a transverse sway bar stops side roll. As the wheels move up or down, four pivoting arms (called "load arms") transmit twisting force to the main torsion bars, which in turn, tell the wheels how to react to bumps and ruts.

A new type of front and rear stabilizer control helps give better handling on sweeping curves and tight corners. And an ingenious power-controlled levelizer compensates for changes in passenger and luggage load, and automatically keeps the car always at "flight-level."

But to fully appreciate this new kind of ride, visit your Packard dealer . . . take the key and see . . . let the ride decide. "Ask the Man Who Owns One."

PACKARD DIVISION • STUDEBAKER-PACKARD CORP.

MT

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PUBLISHED MONTHLY VOL. 7 NO. 7

ROAD TESTS

FEATURES

THE COVER

MT's art director, Al Isaacs, illustrates our article on ride (page 18) with an intriguing design of various suspension system components.

DEPARTMENTS:

SUBSCRIPTION RATE: $3.00 per year. Two years—$5.00. Above rates for U. S., its possessions, Canada; all other countries: one year—$4.00; two years—$7.00. Single copy 25c. On sale at newsstands throughout the country.
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Printed in U.S.A. by Pacific Press Inc., Los Angeles, California.

New McCulloch supercharger adds 40% more horsepower in one easy step!

Cutaway of McCulloch variable-speed supercharger

These features mean positive performance and quiet, long life: **1** Variable-speed drive changes boost automatically to high or low pressure on demand. **2** Automatic control system operates variable-speed drive and regulates maximum supercharger pressure. **3** Ball-bearing 4.4 to 1 speed increaser eliminates gears, and is smooth and noiseless at all speeds. **4** Built-in oil pump and reservoir provides independent, clean lubrication. **5** Light-weight magnesium impeller.

Here at last is the easy, inexpensive way to increase horsepower. If we don't answer your question below, let us know.

Q. What does this supercharger do?

A. It delivers air to the carburetor under pressure, packing more fuel-air charge into the cylinders, which increases horsepower tremendously.

Q. What's the horsepower increase?

A. On the average, 40% increase at the rear wheels, where it counts. (Typical case—'54 Ford, 42%.)

Q. What's different about the McCulloch supercharger's operation?

A. It's the only supercharger with *automatic, variable-speed drive.* This gives extra boost on demand at any speed.

Q. Does installing the McCulloch supercharger involve engine modification?

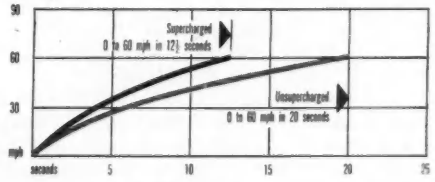
A. No. The engine remains stock. This supercharger can be transferred easily to your next car!

Q. Can it be used on a modified engine?

A. Yes, many special installations have been made.

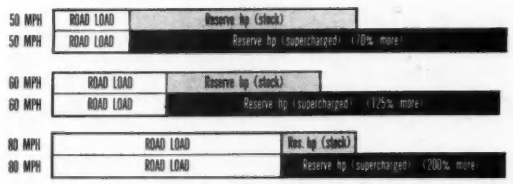
Q. Will it harm the engine or affect normal operation?

A. No. Actual tests show normal life.



Thrilling Acceleration

All through the speed range of your car, a McCulloch supercharger gives thrilling acceleration that takes you around traffic obstacles quickly and safely.

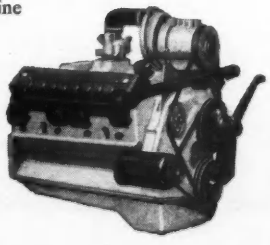


Tremendous Reserve Power

Notice how McCulloch supercharging gives a car far greater reserve power. "Road Load" is the horsepower required to keep a car moving at a constant speed.

KITS AVAILABLE FOR MANY CARS

Complete supercharger kits, containing all brackets, fittings, belts, pulleys, and detailed installation instructions are available for V8 models of the following cars: Ford ($255), Ford Thunderbird ($385), Mercury ($285), Lincoln ($350), Buick ($350), Oldsmobile ($360), Chevrolet ($285), Chrysler ($385), Dodge ($360), Cadillac ($385), Studebaker ($310), and MG-TD ($255). (Prices slightly higher for some installations due to power accessories.) Custom installations possible on any unsupercharged engine up to 300 hp. Kits also available for truck and deisel engines. Use coupon for information.



Typical installation position of supercharger on V8 engine

AVAILABLE EVERYWHERE—New car dealers, garages, and speed shops are now installing and servicing the McCulloch supercharger. If your dealer doesn't have them, ask him to write for details.

McCULLOCH

Paxton Products Division, McCulloch Motors Corporation
827 West Olive Street • Inglewood, California

Paxton Products Division MT
827 West Olive Street, Inglewood, California

☑ Send free literature and price list on McCulloch supercharger kits.
Check here to order kit if local dealer cannot supply you:
☐ Ship installation kit with supercharger for my car. (Enclose $50 deposit; pay balance on delivery.)

Make of car _____ year _____
Power steering? ☐ Yes ☐ No; Power kit? ☐ Yes ☐ No
Make and type of carburetor _____
Name _____
Address _____
City _____ Zone _____ State _____

Some Plain Talk on Police Quotas

WHETHER OR NOT there is such a thing as a quota for traffic tickets has almost always been a matter of conjecture, so it's only natural that the question would come up periodically. And with it arises a hue and a cry that because the local gendarmerie of a certain municipality is behind in the number of violations per accidents, they are therefore handing out traffic tickets wholly indiscriminately.

We have heard of situations that would make us believe such is sometimes the case. At most it is a difficult thing to run down; to prove, almost impossible. The authorities get awfully closemouthed under such circumstances.

Two widely separated instances fairly recently have one thing in common—it was felt that the ratio between arrests and accidents was not high enough, so a plan was instituted to increase the ratio. The methods used were slightly different.

The New York *Times* tells us that the police precincts in Manhattan are now vying with one another to keep the highest possible ratio between arrests or summonses and personal injury accidents. To get credits toward a safety award, a patrol precinct must have a ratio of 10 to 1, motorcycle precincts 7 to 1, and traffic precincts 3 to 1. According to Police Commissioner Adams, policemen will exercise increased vigilance in looking for motorists violating laws designed to prevent accidents. It is also planned to "discipline careless drivers and, consequently, to reduce the number of accidents."

At the other side of the country, in the San Fernando Valley (just over the hill from Los Angeles), an investigation was made after police officials admitted a crackdown on traffic violators, but denied a set quota. One motorcycle officer said, according to the Los Angeles *Times*, "They say we've got to keep up to the 'norm,' or we'll be booted off motor duty. Isn't that a quota?" Sounds like it to us.

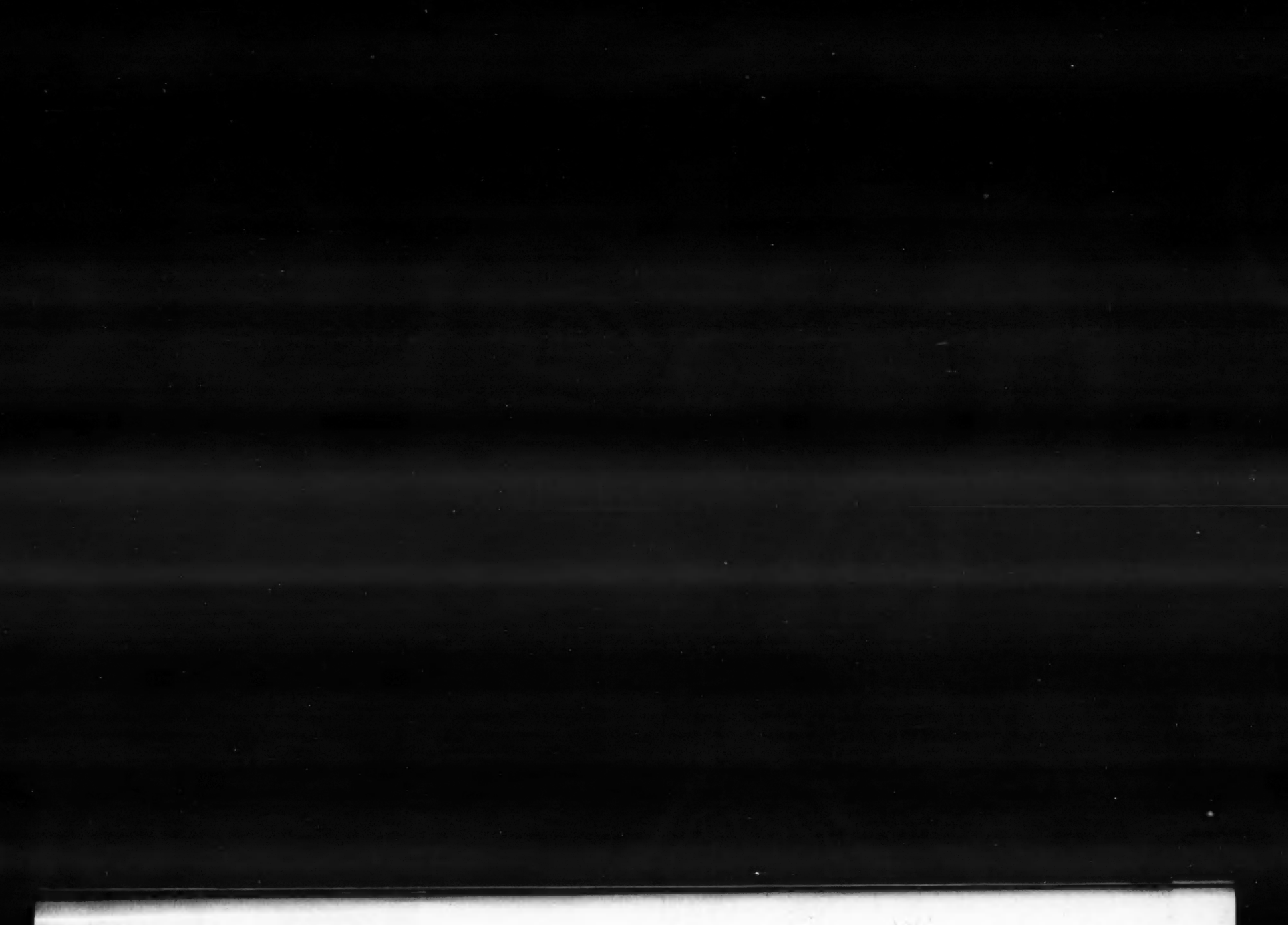
Other officers stated that they were told to issue 120 moving citations per month (denied by the head of the Los Angeles Police Dept.). It was reported that the division commander ordered the crackdown because *40* motorcycle officers in an adjacent community were issuing as many citations as his *60* men!

Fortunately, there are certain influential people in city, county, and state governments who believe as we do: It is not the *number* of violations handed out that reduce accidents, but the thoroughness with which violators are apprehended before they can contribute to an accident. Judge Alton Pfaff (MT, June '54) was quoted as saying, "I adopted a slogan that was heartily endorsed by the then Deputy Police Chief . . . The slogan was, 'Quality, not quantity, in traffic citations is the keynote to effective law enforcement.' I certainly do not favor a quota policy."

We might present a simplified example: If, on a certain stretch of highway, or a city street, etc., there have been 10 accidents per 100 violations over a given period, does it mean that by raising the number of violations to 200, the number of accidents will automatically drop to 5? Or could the number of accidents be reduced to 5 by watching more closely for those violations that *definitely contribute* to accidents?

We don't think the quota system is the answer. Do you?

—*Walt Woron*



Letters

A REAL PROBLEM?

Dear Sir:

My 1955 Oldsmobile, with about 2500 miles on it, has practically no throttle response from 90 to 100 mph, and labors greatly to attain a speed of about 105 . . .

J. G. Molleston — Newport, Ark.

Gentlemen:

Do you think the real body of car owners cares whether or not a car "is a bomb" or accelerates from 50 to 80 mph in 10 seconds, more or less? Or if it takes 80 mph to pass another vehicle, should that vehicle be passed?

Riding, stopping, fuel consumption . . . the little conveniences . . . these are things we're interested in . . .

E. A. Haskins — Fairburn, Ga.

We just hope that Mr. Molleston, whose Oldsmobile's performance at speeds above 90 mph cannot be of frequent use, doesn't test it on public highways. Please, please, leave this kind of thing for us to do on the testing courses equipped for it. A dead reader is no good to MT!—Editor.

THE CUSTOMIZING DEBATE

To the Editors:

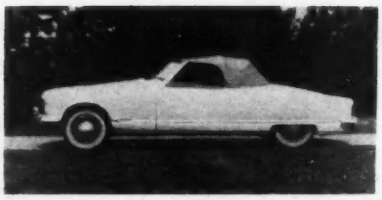
. . . I think a car should maintain its original integrity in design, just as it was first conceived in the minds of its designers. This trend towards twisting an innocent Ford into a 3-way jumble of nondescript parts jars me . . .

But, you'll say, what about the true customizing enthusiast? He wants to have a car that's a bit off the beaten path. Well, to him, I'd say: Either change the basic design so it's unrecognizable, or design an original model and build it. But let's avoid the "mongrel look." It doesn't do justice to anyone.

Bill Bond — Boston, Mass.

Dear Sir:

I built my 1st custom in 1938; since then I've created or helped create about a dozen one-of-a-kind cars, but something is lacking in every custom of my creation. I'd like my



latest one judged by others in the field, but in my opinion, it lacks something altho others rave about its beauty . . .

M/Sgt. Bruce L. Hutton — Buffalo, N. Y.

Gentlemen:

I think the customizing craze is the greatest thing that's hit the automotive world in many a moon. It gives vent to the pent-up emotion about that car that you drive every day. With a little study of design, some talent with tools, and a desire to change what you have, you can come up with something really different . . .

George F. Deavring — Chicago, Ill.

THE GOOD AND THE BAD

Dear Sir:

About every issue of every automotive magazine contains one or more letters such as David M. White's [May MT] that adopt the thesis that all foreign cars are junk and all American cars are special creations of the Almighty . . .

Let's face it: All cars have their good and bad points, so you pick the tool to do the job. If it's to impress the multitude, buy a Cadillac, or a Rolls will do nicely, I'm told; a big family or small farm could use a station wagon, at which Detroit excels; but it's in the department of really useful transportation for the average American that Detroit is selling us down the river. As one who has owned 5 different makes of American cars, 3 foreign and driven a considerable number of other makes in all classes a total of over 300,000 miles, let me say that the most useful, practical, economical, and reliable automobile I have ever owned is the lowly little Volkswagen. What's more, it's fun to drive, handles like a sports car, and is fast enough to average 65 mph all day long.

Bob Reynolds — Albuquerque, N. M.

Gentlemen:

Like everyone else, I'm appalled at the encroachment of the foreign automobile on the American scene. I've driven a few just to see if I were possibly wrong in my estimation of these cars, and all I can say is I'll take Detroit products any day . . .

W. K. Englestadt — Seattle, Wash.

POCKET GUIDE FOR USED-CAR BUYERS

Gentlemen:

To assist you thru automobile row and enable you to converse with the natives, I offer these definitions: *Low mileage car*—we turned the speedometer way back. *Many extras*—the former owners left a box of Kleenex in the glove compartment. *Clean car*—the former owner left the glove compartment. *Good condition*—some of the paint is left. *Fair condition*—none of the paint is left. *Transportation car*—some of the car is left. *Sporty model*—the top was torn off. *Good rubber*—no tire has more than 5 patches. *Needs work*—you've got to see it to believe it. *Will run*—bring another car to tow it home. *One owner*—he couldn't sell it either. *Luxurious*—some of the windows still go up and down. *No money down*—The boss said, "It looks lousy on the lot." *Factory price*—costs about as much as the factory. *Late model*—it didn't run right brand new and it still doesn't run right. *Loaded*—what you've got to be able to buy one.

Martin L. Klein — Woodland Hills, Calif.

THAT WRAP-AROUND RUN-AROUND!

Dear Sirs:

Could you, or anyone, please inform me as to why the public thinks the new wrap-around windshields are such an improvement over the heretofore commonly used one-piece screens? All that has been accomplished is the repositioning of the cornerpost; nothing else, as I see it . . .

All the companies point to the fact that since the posts are back a few inches, the pedestrians are safer because we see them and can stop sooner . . . If Detroit can use all their far-fetched reasons why the wrap-arounds are superior, then my reason why they are more dangerous is just as good.

To wit, the closer an object is to a person's eyes, the more long-distance vision is impaired . . . Has anyone else a comment?

John Sheblessy — Cincinnati, Ohio

It's your debate. Any rebuttals?—Editor.

"Hey cats, My Bop-Beep Horn is the

WORLD'S CRAZIEST SOUND EFFECT!"

...SAYS CHAMPION SOUND EFFECTER

SPIKE JONES

The Bop-Beep Horn Kit is a cinch to install—after all, all it does is split the sound your stock horns make into two tones—one high, one low—about ten times a second, every time you hit the horn. Completely automatic. Takes just three simple wire connections to install on any 6 or 12 volt system. Everything included—fits all cars.

Here's the most nervous noise you ever laid an ear on! Feature one of these Bop-Beep Horn conversion kits on your car, and every time you horn it up, you'll get a frantic musical sound effect that even Spike Jones says is only the greatest! Chicks flip when they dig Spike's Bop-Beep Horn—and their reaction is always the most! Also crazy for gag action—slip one on any cat's car and check his (or her) surprise routine when the horn gives it the Bop-Beep-Bop-Beep-Bop-Beep bit! Plenty yaks guaranteed. Send only $6.95 for your Bop-Beep Horn kit today. We'll pop for postage. If you don't have a four-alarm ball with this gadget, bug us and we'll refund your loot—all of it, man!

BEATTY MANUFACTURING CO., Dept. MT-7
3450 Wilshire Blvd., Los Angeles 5, California

DEALERS—Spike Jones's Bop-Beep Horn is a fast-selling item for speed and custom shops and any other automotive accessory outlets. Send for prices today to: Beatty Manufacturing Co., Dept. MT-7, 3450 Wilshire Blvd., Los Angeles 5, California

BEATTY MFG. CO., Dept. MT-7, 3450 Wilshire Blvd., Los Angeles 5, Calif.

Please rush _____ Spike Jones BOP-BEEP Horn Kits at $6.95 each.
☐ I enclose cash, check, or money order in full; you pay postage.
☐ I enclose $2.00 deposit on each Kit; will pay postage, C.O.D. charges.

Make of car _____ Year _____

Name _____

Address _____

City _____ Zone ____ State _____

SPOTLIGHT ON DETROIT

by Don MacDonald

THE DEARTH of new product news this month is seasonal and therefore understandable. Half of it sums up in the notice that Packard's huge, glamorous Caribbean convertible, 1st shown at the Chicago Auto Show, is now available to the public, but since orders are already on hand for the year's limited production (about 700 units), this doesn't help us much. The other half is Chrysler's announcement of a special 2-tone Windsor sedan called the Blue Heron, and a hardtop counterpart called the Green Falcon, the latter name reminding us more of certain whodunit TV programs than springtime color schemes.

IT WAS NOT ALWAYS THUS; the July, 1929, issue of *Automotive Topics*, for example, featured no less than 8 brand-new cars, as well as paragraphs on most of the 47 manufacturers with their 730 different body models. In any month of that era, editors and car buyers alike could choose from offerings of almost infinite variety.

BY VARIETY IN CARS we mean the difference between an A-model Ford and a K-model Lincoln, or the early Chrysler Imperial and same vintage Plymouth. We mean cars like the L-29 Cord, the air-cooled Franklin, and the "Safety" Stutz, each of which was individual, to say the least. We mean the choice in body models catalogued by any single manufacturer, not to mention umpteen custom body shops ready and able to design to your whim (1.8 per cent of 1929 production was custom). In essence, one's car was an extension of one's personality, and one didn't meet himself coming around every corner.

WHAT HAVE WE TODAY? Plymouth and Imperial, to choose 2 examples at random, are still with us, but what is the essential difference? For all practical purposes they are equally big, equally quiet, equally comfortable, equally fast, and darn near equally luxurious. A complete range of accessories, from air conditioning to Kleenex container, is common to both. The anly essential differences are an increasingly narrow margin of gasoline economy in favor of the Plymouth, and a somewhat lessened, but still considerable, gap in purchase price and overall operating costs. Viewed this way, it is hard to escape the conclusion that the man who buys an Imperial (or Cadillac, or Lincoln) when he could have 2 Plymouths (or Chevys, or Fords) has a fair-sized hole in his head.

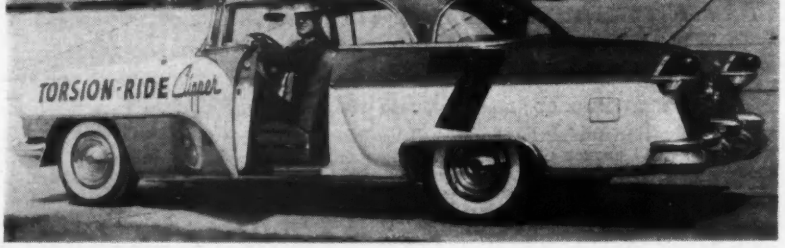
SO HE BUYS HIS CADILLAC, and it must be frustrating. Neglecting the limousine (mainly commercial now), he can choose from a hardtop, a sedan, or a convertible, with a minor variation available on each of the 3. Paint and upholstery, of course, can be had in such variety that the odds are against a truly identical car coming off the line within a month. But whether blue and white, or white and blue, it is still just another 1955 Cadillac, and there will be about 150,000 of them on the road before the year is out, according to the most recent report available.

BEFORE WE GO FURTHER, we should emphasize that we are not picking on any one make of car. What we said about Cadillac applies to any or all. Ford, at the opposite end of the price scale, offers more body models, but an chance of the buyer expressing his in dividual tastes is thwarted by va swarms of Fords coming off the produc tion line each day.

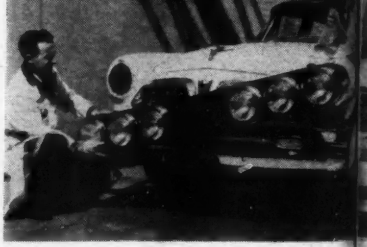
EVEN BETWEEN MAKES, what is th difference? Under the stubby hoods o most are short-stroke V8s of neck-snap ping power, delivered to the rear en through automatic transmissions th may differ mechanically but feel th same. You sit cushioned by a combina tion of coil and leaf springs (with notable exceptions), and glare thr your wrap-around windshield at kaleidoscopic traffic jam of samene Today's parking lots remind one sens tive soul we know of a vast sea Easter eggs, when viewed from a di tance. When he gets closer, he no that these eggs come in 3 commerci grades—medium, large, and jumbo but all are ovoids, despite their 2-, or 3-tone color combinations.

THERE IS HOPE, and by that we do necessarily mean that you *have* to i port a roadster, salvage Grandma's Ma well, or wrestle with a Duesenbe With ever-increasing frequency, y pass and get passed by Corvettes, Birds, and Metropolitans. Soon th will be joined by Eldorado brougha Continentals, and even the L'Universe truck. Semi-customs such as the curre Eldorado, the Caribbean, and the n defunct Skylark are at least differe Still, none of the above will help t majority to escape from sameness.

THEY POINT UP A TREND, just as the steady flow of imports, the upsur



Bill Holland has picked a torsion-sprung Clipper as his choice for stock-car racing. Overdue re-entry of Packard, long absent from serious competition, should up sales



Many-eyed monster above is test Chr ler, proving worth of new sealed-bea

in back-yard customizing, the infant but lusty Fiberglas body industry, and Gene Casaroll's recent decision to produce the Firebomb. The Detroit pendulum is swinging back to variety, in response to demand from the same public that killed variety through lack of interest (or purchasing power) in the 30s.

PONDEROUS GM SENSES IT, or you wouldn't have the Nomad, the Safari, or the 4-door hardtop. Studebaker, a bit premature, was the bellwether with its '53 coupe, and now the S-P Corp. is openly basing its comeback plans on one thing—innovation—which is synonymous with variety. It has always been a forte with both halves of American Motors, what with unit (or Monobilt) construction, the Jet, and the Rambler. Kaiser-Willys, unfortunately, couldn't hold out, and have, in the main, retired to their Jeeps.

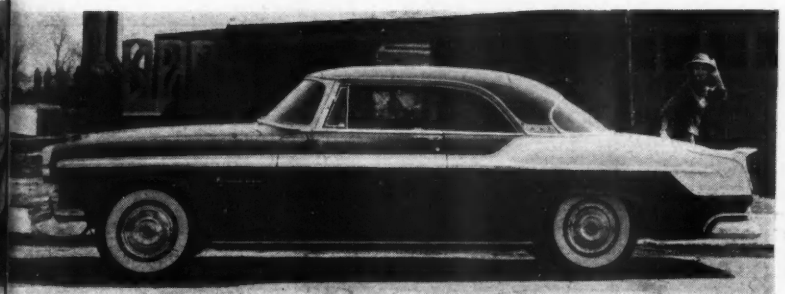
THE CATCH IS that we have already run out of examples. There are just too few organizations left to provide any real variety as we knew it in 1929. No matter how big it is, a corporation of necessity thinks like an individual and therefore comes up with only so many really new thoughts each year. When there are only 5 of them in the passenger car business (or 16, counting currently active divisions), there is bound to be less innovation than in 1929 when there were 9 times that many thinking units.

COMPOUNDING THE PROBLEM are 2 possibly fallacious maxims which between them govern all that is considered sound automotive business today. The 1st is that if your competitor has something really good, you should copy it. The best recent example of this is the wrap-around windshield; the next, undoubtedly, will be the 4-door hardtop. The other rule is to achieve economy of production by designing around interchangeable parts.

LET US ANALYZE THESE MAXIMS. GM has a long list of 1sts to its credit because vast market penetration enables it to quickly accustom the public to such things as the wrap-around windshield. Once the route is paved the others quickly follow in a cycle of imitation. Imitation is easy because in 7 cases out of 11, competition had the same idea on tap but waited for GM to risk it. It can be argued that all automotive advances came into being in this manner, regardless of who was 1st, but it does lead to sameness. To support the argument, we predict that if the Rambler achieves its planned success of 200,000 units yearly, GM will have a competitive product in the small, but not too small, car field, possibly a "luxury" job like the Motorama LaSalle II. Neither will Packard be alone with unusual suspension.

LITTLE BUT STYLING REMAINS as a field for difference, and this does vary to some extent (but basically not much) between groups of companies. Within the family, however, what is generally considered to be economic necessity dictates that designers work around a common body shell. Variation, therefore, is restricted to brightwork, fenders, and paint. Nothing much can be done about this until someone figures out a new, less expensive way to tool up for automobile production.

IT IS DOUBTFUL that the so-called independents, even in proportion to their size, will contribute any more to future solutions of these problems than GM, Ford, or Chrysler, despite much recent recognition of their roles as innovators. Certainly, no newcomer can undertake mass production of automobiles in the foreseeable technological future. As long as there is prosperity, there will be a healthy fringe of imports and semi-customs available, but the real answer to the current need for variety will come from the creation of new, full-fledged divisions within existing companies, such as is projected by Ford (June "Spotlight"). This creates new thinking units, and from them will surely stem innovation and the automobile we, the consumers, are each individually seeking. Meanwhile, the few companies left in Detroit are doing a pretty good job.



Spring-styled Chrysler Windsor hardtop and sedan sport New Yorker-like platinum side panels, expect soaring sales records with names of Green Falcon, Blue Heron

The Rumor Mill

"Product of 5th Ford Division (June 'Spotlight') will be called the Edsel; it will be a relatively small luxury car, somewhere between Mercury and Lincoln . . ."

COULD BE—This is not so much a rumor as good conjecture. All 3 Ford brothers are anxious to perpetuate father's name. Cost of car pegged by fact that Mercury already infringes on "low-price" field; open gap exists only between Merc and Lincoln. Size of car (now barely on drawing boards) will be governed by current trend towards luxury in small package. In any case, don't look for it before 1957.

"New Continental will have fuel injection."

FALSE—Good basis for this, as they were working hard to have it ready for fall introduction. Interim substitute will be 2 4-barrel carburetors on a 368-cubic-inch block with possible option of McCulloch supercharger. Horsepower should run around 325, not 375 as has been rumored. That figure applies to injection version.

"Chrysler line will be all new for 1956 and bow early . . ."

FALSE IN PART—Chrysler Divisions will have only fairly extensive facelift for '56, but will bow early, maybe 1st.

"The days of the 6 are numbered (see MT, Jan. '55) . . ."

TRUE—The 6 will still be with us in the low-price field, but will disappear in Dodge, possibly big Nash and Hudson (see below), not Studebaker or Rambler.

"American Motors will have new V8 of their own for '56 . . ."

PROBABLE—As reported in June "Rumor Mill," tooling is out for new AM V8. However, it will not supersede more powerful Packard engine now used in big models; it's slated for smaller Statesmen and Wasps.

"Story around town tells of Henry Ford II's interest in some gaudy new fabrics shown him by vendor. Young Henry sent these to his product-planning group for analysis of potential customer appeal. Answer came back that fabrics would attract 'pink shirt and charcoal gray suit' crowd. Product planner was sent for, arrived in person to find boss dressed in exactly that clothing. Chagrined employee offered to resign on spot but was refused, receiving pat on back instead . . ."

NO RUMOR—This story is true.

"Four-door hardtops will be available from all of Big 3 in '56 . . ."

TRUE—These will be available thruout the '56 Chrysler line; Ford will have a version, as well as biggest and smallest GM cars. Mercury's approach is problematic, due to semi-hardtop Montclair.

Glove Compartment

INTRODUCING JOHN BOOTH. Does this name make you say, "I've heard of the guy, but where?" It may have been as designer and builder of the X-Ray Special (our cover car for October '54), as well as the Carter sprint car and the record-holding El Toro Special. It may have been as project engineer for MT's record-setting DeSoto during NASCAR Speedweek ("The Story Behind Daytona," May MT). He has taken 3 1sts and 3 2nds in competition and has 4 more wins to his credit as a racing team director; these include an international class win at Sebring and a national class record at Daytona. But we hope that you have heard of him as Director of Safety for the Air Transport Command and Air Materiel Command, for his original safety findings under Air Force sponsorship (they have since become standard procedure) and for his winning the National Safety Council's 1946 award for the outstanding contribution to safety.

MT is proud to present its new Engineering Editor, John Booth. Starting on page 18 is the 1st of his penetrating analyses, which will be a regular feature.

BIG-TIME AUTO RACING has lost 2 big-time competitors. Mike Nazaruk, killed in Langhorne, Pa., sprint car race; Manuel Ayulo, when his car struck wall during practice for Indy 500. Both men started in auto racing after World War II. Ayulo rose from West Coast hot-rod ranks to become sensational midget chauffeur. Nazaruk was better known in East, where he burned up spring circuits after apprenticeship on midgets. Both were considered 1st-rate performers on Indianapolis and championship cars. At automobile racing circuits countrywide, Manny and Mike will be fondly remembered, sorely missed. . . .

SPARKPLUG CHANGEOVER on many of today's modern V8s is becoming relatively complex, say dyed-in-wool do-it-yourself fans. But no need to divert dollars to dealers, advises AC with its neat little picture story booklet entitled *Service Tips on Spark Plug Removal and Installation*. Step-by-step details show how to get at plugs hidden in heads of Chrysler Corp. engines, behind complex heater ducts in current Lincolns, plus oth equally difficult situations. Free copies obt able from Spark Plug Merchandising De AC Spark Plug Div., Flint 2, Mich. . .

BETTER SERVICING MAY SOON CO your way, what with announcement of e tronic instrument that "televises" engine Invented by Albert E. Traver, electronics gineer, Socony-Vacuum, it gives simultane pictures of engine cylinder behavior on os loscope screen. Can diagnose ignition troub like sparkplug fouling, short-circuits, defe tive wiring, coils, condensers, etc., in less th minute. Was developed in research labs General Petroleum's eastern affiliate; will manufactured and sold under licensing agr ments with Allen B. DuMont Laborator Inc. . . .

CLIPPER TEST RESULTS are in. Same c hot-engine specialist Bob Palmini's fresh calibrated Clayton dynamometer.

REAR-WHEEL HORSEPOWER
(All tests are made under full load, which similar to climbing a hill at full throttle. Ob served hp figures not corrected to standar atmospheric conditions.)
83 road hp @ 1500 rpm and 40 mp
102 road hp @ 2000 rpm and 47 mp
142 road hp @ 2500 rpm and 65 mp
150 road hp @ 3000 rpm and 80 mp
(Same output at max. 3400 rpm

Add to general specifications:
Test car weight 4220 lbs. Test car weight/bhp ra 17.2:1. Weight distribution 54.9% front, 45.1% rea

CHRYSLER CORP. sales have jumped 4 per cent over 1954, are now 18.5 per cent o industry's total, compared to less than 13 pe cent last year.

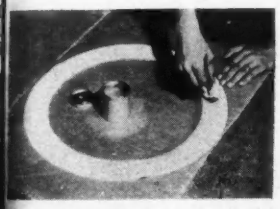
BATTERY-DRIVEN PLASTIC MIDGE CAR for kids, styled after Ford Thunderbi has overall length of 66 inches, stands i

inches high, is 30 inches wide. Maximu speed, 5 mph. Overall weight, 140 pound Holds child (up to 5 feet), with additio space for small companion. Manufactured Power Car Company, Mystic, Conn. Appro mately $395. . . .

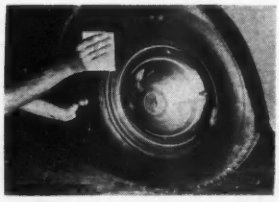
NEW PLASTIC RESIN TECHNIQUE of r pairing damaged or rusted sheet metal h been announced by GM. Is faster, cheape and permits work to be done without remo ing sheet metal part from automobile. Epo resin is mixed with hardening agent, the used to saturate piece of Fiberglas cloth c to size of metal area to be repaired. Patch worked into place, allowed to dry, harde then ground down and painted to match su rounding surface. More on this will be pub lished later. . . .

—The Editors

Do-it-yourself Kolorwalls and Whitewalls for every car!

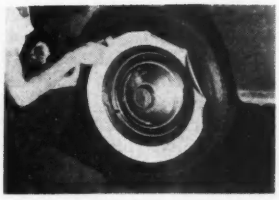


1. Apply cement to back of sidewall ring.



2. Rough surface of tire with abrasive.

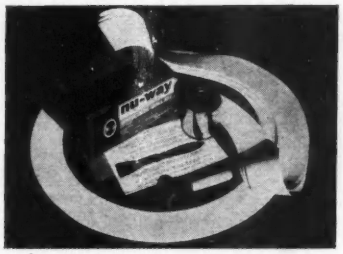
3. Apply cement evenly to tire with brush.



4. Roll & smooth ring for gleaming new tire appearance.

EACH KIT CONTAINS:

- *Complete set of four (or five) Latex rubber rings*
- *Special process cement*
- *Application brush*
- *Special abrasive*
- *Hardwood roller*
- *Complete instructions*



OPPORTUNITY FOR DEALERS AND DISTRIBUTORS

Dealers and Distributors: cash in now on sales through retail outlets, new and used car dealers, etc. Minimum inventory deal. This brand new accessory item is backed by a full-scale national advertising and publicity program. Write, phone, or wire: Accessories Limited, Mfg. Div. T7, 6300 San Fernando Road, Glendale 1, California.

You asked for them, and here they are: sidewall kits in *colors* to match your car! These 100% latex rubber Nu-Way Kolorwall and Whitewall rings come in sky blue, dazzling yellow, sea-foam green; shocking pink, or gleaming white—there's a color to match or harmonize with any car—and you can apply them yourself on your present 15″ or 16″ tires in about 15 minutes per tire.

Developed by one of the nation's leading rubber research laboratories, these sidewall rings have been tested under every driving condition. They don't peel off, change color, chip, or crack when driven at any speed, on any surface, in any weather. And the color isn't just on the surface—it goes all the way through the latex. Just like your regular sidewalls in every way but one: they add eye-catching, colorful beauty to your car.

Try Them for 15 Days at Our Risk!

Send just $11.95 for a kit containing four Kolorwall rings (five rings, $13.95). Whitewall rings, $9.95 for kit with four rings (five rings, $11.95). We'll pay the postage. (Or, send $3.00 deposit, pay balance, C.O.D. charges on delivery.) Keep the sidewall rings for 15 days. If you don't like them for any reason, your money back, and no questions asked.

ACCESSORIES LIMITED

Mfg. Div. T7, 6300 San Fernando Road, Glendale 1, California

Accessories Limited, Mfg. Div. T7
6300 San Fernando Road, Glendale 1, Calif.

Please rush me:

_____4-disc Kolorwall kits at $11.95 each
(☐ blue ☐ yellow ☐ green ☐ pink)

_____5-disc Kolorwall kits at $13.95 each
(☐ blue ☐ yellow ☐ green ☐ pink)

_____4-disc Whitewall kits at $9.95 each

_____5-disc Whitewall kits at $11.95 each

☐ I enclose full amount; please ship postpaid.

☐ I enclose $3.00 deposit per kit; I will pay balance and C.O.D. charges on delivery.

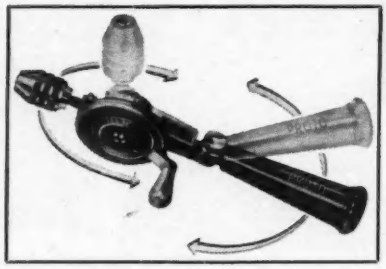
My (make)_____(model)_____has ☐ 15″ ☐ 16″ wheels.

Name_____

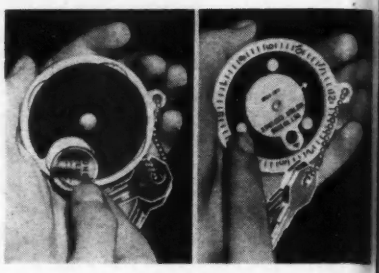
Address_____

City_____Zone_____State_____

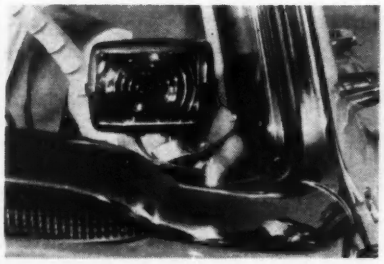
Motoring Trends



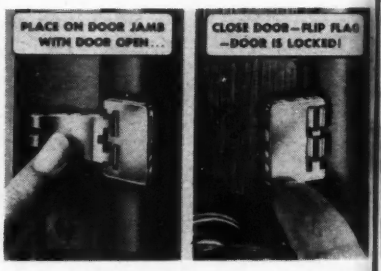
FASCINATING — and practical! The Plomb Tool Co. says their all-angle drill will reach around obstructions, operate in close quarters. Its ¼-inch chuck swings in a 270-degree arc, the handle turns 180 degrees at right angles to the chuck movement. Handle holds drill bits. Ask your nearest Proto tool dealer for drill No. 370.



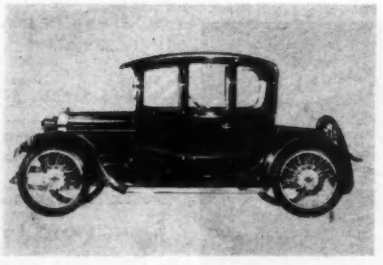
SET the Meter Detective for the time the parking meter expires, and while dining or shopping, a glance at the "meter" tells you how much time is left on the mechanical stool pigeon outside. Holds 8 coins, has a chain for your car keys. It's only 2⅜ inches in diameter. Price, $1 postpaid. Richard's, 2029 Bradley Pl., Chicago 18, Ill.



ADJUSTABLE sensitivity at your fingertips is available in the Dim-O-Matic automatic headlight dimmer. Your present floor button controls override, indicator light tells when unit is on automatic or manual operation. It leaves no holes when switched from car to car. Write to The Maico Co., Inc., 21 N. Third St., Minneapolis 1, Minn.



THE GREATER the force on the outside of the door, the tighter the grip of the Quick-Secure Door Lock. Carry it in your pocket, put it on doors in motels, cottages, without tools. Can be installed permanently or temporarily. Ideal for vacation travels. It's only $1 ppd. G.L.C. White Co., Inc., 1593 Crossroads, Los Angeles 28, Calif.

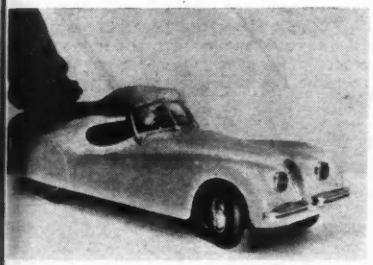


COLLECTING automotive prints is a fast-growing hobby, and these 4-color display pieces can get you off to a good start. Stylist Alexis de Sakhnoffsky's portfolio includes the '13 Henderson shown above, a '53 Mercedes-Benz, an '06 Ford runabout, and a '54 Bentley. The set costs $10.50. Arthur G. Rippey, 2525 E. Exposition Ave., Denver 9, Colo.

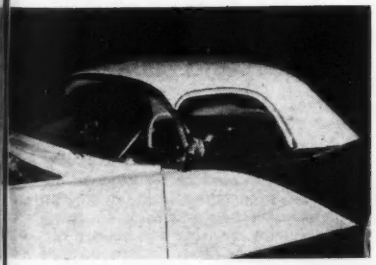
LOW COST fire protection for home or car is offered in the P-K fire extinguisher. Carbon tetrachloride shoots out in 10- to 12-foot spray at the touch of a button. Fits in glove compartment; free wall bracket supplied. (Also dries out wet wiring in boats or cars!) $1.69. Made by Plasti-Kote, Inc., 425 Lakeside Ave. N.W., Cleveland 3, Ohio.

This department is not composed of paid advertising. All items are guaranteed by the manufacturer for immediate refund if you are not satisfied. Claims made herein are those of the manufacturer, and do not constitute an endorsement by Motor Trend. When ordering, include sales tax if required by your state.

CARRIED in the glove compartment or tool box, the Supreme First Aid Kit will always be handy in emergencies. It measures 5⅜ by 5⅜, contains mercurochrome, tape, bandage, gauze, adhesive bandages, cotton. $1 each, or 2 for $1.75. Order from the Joy Merchandising Co., Box 34-MT, Flatbush Ave., Brooklyn 26, N.Y.



FOLLOWING response to its MG sports car kit, Doepke Mfg. Co. has announced the '55 line with a do-it-yourself Jaguar kit. Made up of some 50 parts, the mostly-metal model (1/10-inch scale) has spring-mounted rear wheels, steerable front wheels. It's 16 inches long, priced at $10.95. At hobby shops, model centers across the country.



INSTALLATION of a Scott Fiberglas top on your Corvette requires no changes, no holes to drill in the body. The 23-pound top is anchored by 5 wing nuts, can be put on or removed in 30 seconds. Price is $155 f.o.b. Comes in 3 Corvette colors or primer. The custom-built top comes from Scott's Top Shop, 1327 State St., San Diego 1, Calif.

car owner's LIBRARY

HIGH GEAR

An anthology edited by Evan Jones

Published by Bantam Books, Inc., 25 West 45th Street, New York 36. 25c.

RARELY, in an automobile fancier's life does an ideal book come along, something he can turn to in any mood for sheer entertainment. *High Gear* fits this description; it's a fine anthology of short stories about cars and the people who live in and love them, authored by such stalwarts as John Steinbeck, Ken Purdy, Bill Mauldin, and more besides. Some high humor crackles thru the pages when Bill Mauldin depicts the hilarious story of a private, a chicken captain, a general and a hot-rod Jeep, and the Old Master, Saroyan, weaves his own special brand of enchantment once again. Frank Harvey's offering, "Throttle Shy," written in the terse, blunt language of the racetrack, really hits home, as does John D. MacDonald's powerful story, "Elimination Race." There is nothing similar about the plots. Even tho they all deal with automobiles in one way or another, subjects veer from bloody racetracks to ghost flivers. Highly recommended.

—*M.P.*

BEST WHEEL FORWARD

by J. A. Gregoire

Published by Thames & Hudson, Ltd., 24 High Holborn, London, W.C. 1, England. Available thru Autobooks, 2708 W. Magnolia Blvd., Burbank 15, Calif. $4.00.

THE AUTHOR is known in the automotive world as an engineer, inventor and race driver. In his 194-page illustrated book he's brought an exciting and valuable outlook to the reader interested in the adventure story behind the development of the automobile. This account of his life with cars is filled with well-observed incidents, touched with both tragedy and comedy. It has a kind of practical philosophy, dealing not only with machines but with men as well. It's a book for people who like people.

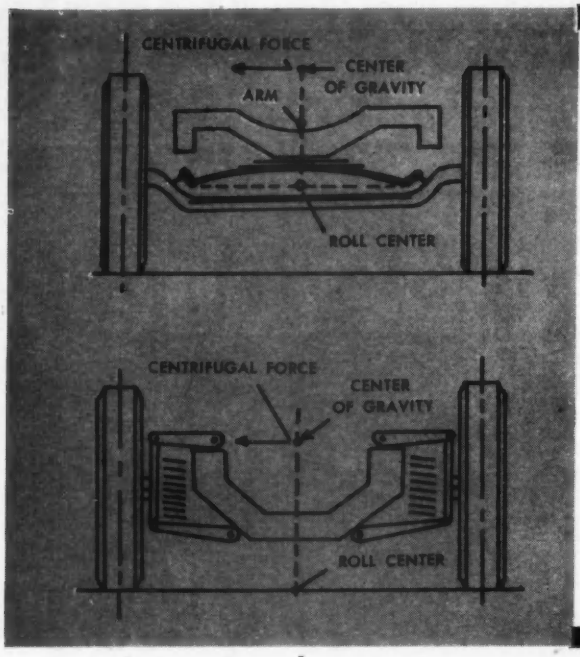
—*J.E.P.*

AUTO, 1955

Published by Tudor Publishing Co., 221 Fourth Ave., New York. $7.50.

THIS 3RD ANNUAL ISSUE of the *International Yearbook of Automobile Design and Production* comes richly bound, with over 300 finely reproduced plates. There is a section of plates covering the history of coach building, titled "The Evolution of Coach work" (with technical explanations in Italian, English, and German), which attempts a pictorial history of coachmaking and body style from earliest times to the present. Plates of foreign cars with corresponding data cover 184 foreign countries besides the U.S. The technical specifications include data on number of cylinders, bore, stroke, piston displacement, brakes, transmissions, wheelbase, suspension, speed, price, etc.

—*M.P.*



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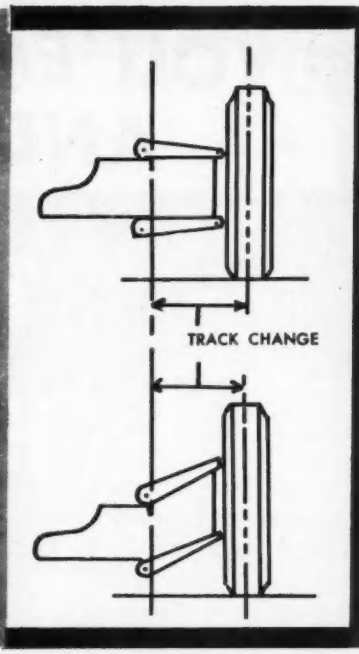

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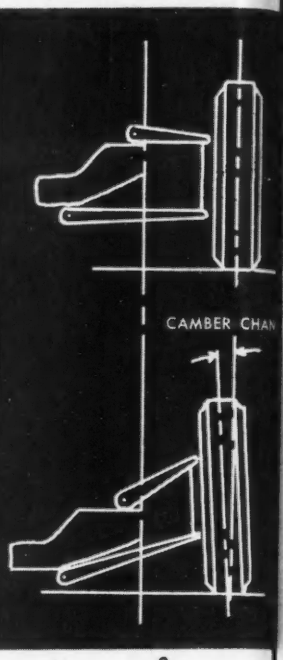


3

1. Comparison of rigid front axle and independent suspension systems shows how latter lowers roll center

2. Equal-length suspension arms introduce tire scrub

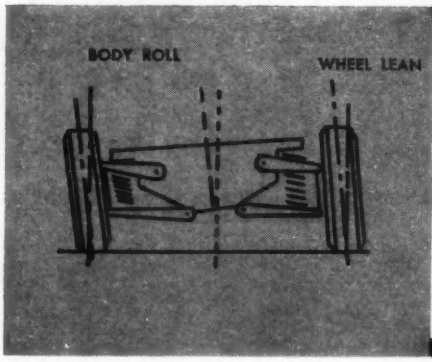
3. Most universally used front suspension system has unequal arms. Track stays same but camber changes

4. Roll accentuates wheel lean, brings gyroscopic action

5. Inclined kingpin, some camber give center steering

6. Wheel camber causes cone effect at ground, resulting in wheel's tendency to roll out. Toe-in corrects this.

7. With positive caster, load point is ahead of contact point, causes wheel to try to stay in a straight line



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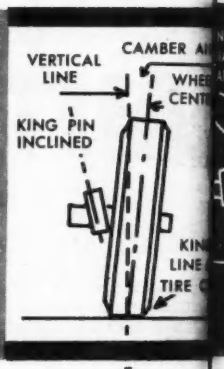


5

IF BROKEN ATTENDANCE RECORDS are any indication, chances are you were one of the statistics that recently attended an automobile show somewhere in this land of ours. If so, it's also probable that you saw the results of over 50 years of automotive evolution, for these shows generally represent the current final word in engineering and design.

You, the buying public, by your unprecedented automobile purchases so far this year, have given your stamp of approval to the brains behind our vast and complex automotive industry. This may be good for the industry's financial statements, but it *could* lull Detroit into sitting tight for a few years before making a much-needed basic design change. Let's face it—your car needs a new suspension system! True, it may have a sleek 1955 hardtop body but, apart from one notable exception in the industry, that new body sits on a suspension at least 12 years old, design-wise. Sound ridiculous? It *is* ridiculous. And especially so when one considers the basic changes that have been made in horsepower potential the last 5 years. Actually, this horsepower increase has made today's suspension principle less efficient than it was 10 years ago. By being less efficient, it has created a higher accident potential.

Many factors have contributed to this suspension stalemate, which most of our automotive engineers are aware of. Further, they are doing something about it on a developmental level. But if the past is any portent of the future, you can hardly expect to buy a "safe" automobile until you, the buying public, demand it.

Is the ideal suspension system so complex that we must have a car that leans outward on turns, that dips during braking, bounces over bumps, and fishtails during acceleration? Let's analyze some of the problems, and from what has been done see if we can predict the future.

From the 1st horseless carriage to the present luxurious dreamboat, suspension engineers have been confronted with 3 basic problems: steering, braking, and roadholding. These problems have been met with varying degrees of success, especially by our foreign-car engineers. The last decade, however, has produced a 4th problem that threatens to destroy the few good characteristics of our present suspension system. This problem is the one of soft ride.

We are all somewhat guilty of creating this problem by howling for a softer and softer spring. We now have it. In fact, it is *so* soft that any resemblance between good and actual roadability is either engineering genius or pure accident. When a spring is made to produce this soft ride it is said to have a "low spring rate." This essentially means that, for any given degree of road irregularity, the wheels will move up or down further and easier than with a hard spring or "high spring rate." This, then, is the beginning of the "soft ride" problem.

The success or failure of a suspension system depends upon many factors, among

SOLVING THE RIDE RIDDLE

The most old-fashioned part of your car is probably its suspension. Here are the snags standing in the way of improvement.

by John Booth

them the ratio of sprung to unsprung weight. Sprung weight is that mass (body, frame, etc.) resting on and supported by the spring. Unsprung weight is that mass (axles, wheels, brakes, etc.) on which the springs rest. If the wheel strikes a bump, the unsprung parts are raised from the ground. The heavier these parts are, the more effect inertia will have. The higher they go, the longer it will take for them to return to a static position. It follows, then, that not only must our engineers reduce unsprung weight, but they must also limit wheel travel. When limiting wheel travel with a soft spring, a condition known as "bottoming" occurs. Control of bottoming has been attempted by the use of shock absorbers and/or "variable rate" leaf springs. Both methods are far from ideal. A shock absorber in effect stiffens a spring in proportion to the velocity of impact. A leaf spring does essentially the same by utilizing more leaves in proportion to the impact. Neither, however, can distinguish a pothole from a brick in the road, so cannot prepare the rest of the suspension system for the coming shock.

In their quest for a smoother ride and more passenger room, our engineers adopted the independent front suspension system during the '30s. While this system produced a smoother ride, many other problems manifested themselves. Replacement of the rigid front axle with independently sprung wheels lowered the roll center of the car to approximately ground level in front (Figure 1), while maintaining a roll center at about axle level in the rear. This produced (and still does) an overall roll center of somewhere near halfway between these 2 points; however, this compromise offers little resistance to body roll and produces a dangerous "outward lean" in a turn due to centrifugal force. Several methods are used to help counteract these deficiencies. A torsion bar, commonly known as a roll bar or torsion stabilizer, is now universally used to connect the front wheels. It is designed in such a way that a deflection in one wheel transfers the force to the opposite wheel, depressing the spring. This tends to raise the roll center, but at the same time *connects these front wheels*—after years of engineering have been expended making them independent!

Another method used to reduce roll is "tire scrub." In this system (Figure 2), independent front suspension arms (wishbones) are of equal length and form a parallelogram. As the wheel is flexed, the track (or tread) changes width, producing a scrubbing effect. The resistance set up by this scrubbing action tends to raise the roll center, but at the expense of excessive tire wear.

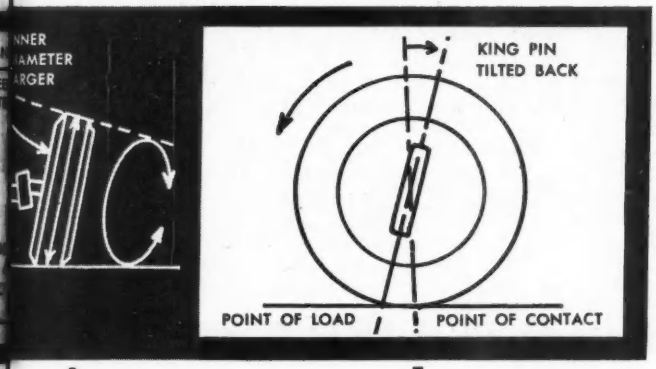
The most widely used front suspension system today employs the unequal wishbone and coil spring layout (Figure 3). The geometry of this system produces a constant tread or track but, as we said before, it has a low roll center and characteristically causes a camber change. While camber change (the degree of wheel lean from vertical) isn't too important at low speeds, something else happens when it's coupled with body roll in a turn (which encourages wheel lean to an alarming degree): a very dangerous gyroscopic action is set up, which can cause complete loss of steering control (Figure 4). This softer ride has caused other troubles, too. Excessive front-wheel movement up and down imposes definite changes in toe-in and steering geometry. The tie rod must move in an arc from the pitman arm of the steering gearbox to the ackerman arm at each wheel, causing the front wheels to toe in and out on jounce and rebound in proportion to the arc change. Not only does this produce tire wear, it causes a pull to the right or left, depending on the nature of the bump. It is true that a certain amount of toe-in is pre-set at the factory, usually 1/16-1/8 inch, but it is meant to remain constant. This toe-in is the result of still another complex problem in suspension geometry.

Because of the need to reduce loads on front-wheel bearings, kingpin shear, and road shock transfer to the steering wheel, it is necessary to have at least "near center-point" steering. This is accomplished by 1st tilting the kingpin toward the bottom of the wheel and tilting or "cambering" the wheel inward at the bottom also. A line drawn through the kingpin would be near the center of the tire at ground level. This results in the desired near-center-point steering (Figure 5). It is this camber or wheel tilt that necessitates the pre-set toe-in to prevent tire scrub.

Due to the difference in tire diameters between the outer and inner edge of the tire tread caused by wheel tilt, the tire produces a "cone" effect at ground contact (Figure 6), which causes the wheel to try to roll outward away from a straight line. The proper toe-in offsets this tendency. It can be seen, then, that changes in steering geometry do occur in proportion to jounce, rebound and body roll. And this is not good from a safety and driver fatigue standpoint at all!

There are other problems, too; for instance, tires. Our engineers reached a point in soft-springing technique that even they dared not exceed. Tire manufacturers were recruited to aid and abet this "soft" phobia. They increased tire width and air volume, reducing wheel diameter. They *did* produce a soft-riding tire, but in doing so they placed so much rubber on the ground (approximately 80 square inches for 2 7.10 x 15 tires) that engineers had to start reducing positive caster, also vital to good suspension.

Caster, something like momentum, is the inherent tendency for a wheel to stay in a straight line when revolving or to return to a straight position when turned right or left. This is accomplished by tilting the kingpin rearward at the top (Figure 7). The result is a leverage created by the car's weight. This leverage (or tendency to return to a straight position) creates a resistance against turning, which is for most any driver a positive safety factor. Without it, when turning a corner, you would have to pull the steering wheel



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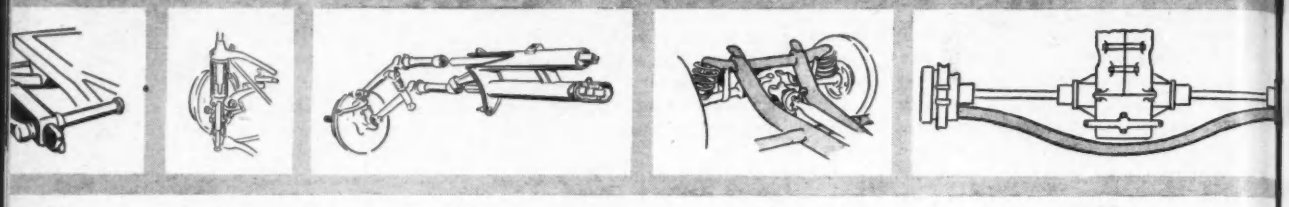

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back to a straight-line position instead of having the wheel snap back the moment you released pressure on it. But the problem our engineers faced was that this built-in turning resistance (in addition to increased tire size) made parking an automobile practically impossible for all but a physical giant. The logical thing to do then was reduce this caster.

Every time tires were made larger, caster was reduced, until at one time America's most expensive production car had as much as 3 degrees *negative* caster. Negative caster acts just opposite to positive caster: go into a turn with negative caster, and the wheels try to tighten the turn instead of returning to a straight line. It seems beyond belief that intelligent engineers would practice such dangerous techniques. In all fairness to them, however, it must be remembered that they were, and still are, under pressure from you and their various sales and advertising departments. Since they *must* retain the soft ride, having reduced caster to the point of real danger, there was only one thing to do: add a necessary accessory. This, of course, was power steering. With this new gadget they could increase caster, reduce turns required from lock to lock and, above all, keep the big tires! They gained another advantage. Our present system of front suspension distorts to such an extent under impact that, with normal caster, the only way to prevent front-wheel shimmy is thru stabilizing effect of power steering with the proper caster.

As we said earlier, the ratio of sprung to unsprung weight is an important factor in suspension stability. The conventional differential on today's car is all unsprung weight. It is usually supported by parallel semi-elliptic leaf springs. Three cars use coil springs in the rear as well as the front.

In earlier days this setup allowed rear body sway, "torque wrap" of the differential under acceleration and braking, and rear-end chatter while backing up. These problems have been greatly reduced by the addition of sway bars, angle-mounted shock absorbers, radius rods, and wider but fewer spring leaves. Admittedly, the rear suspension is far superior design-wise to the front end, but much work is still to be done in reducing unsprung weight as well as improving springing technique.

While the foregoing deals with what is offered in today's production suspension systems, many ideas have been tried and some produced in the past. All have been discarded, usually for sound reasons of cost, undependability, or inpracticability.

8, Dubonnet-type suspension, as on Opel and Vauxhall, alters violently with slight wear. 9, the pillar type, while tops in unsprung weight, restricts wheel movement (but not wear!). 10, trailing arm suspension, as on VW; it costs too much. 11, swing axles wear out tires. 12, de Dion bar has good stability, also costs a lot

Possibly the 2 most radical departures from conventional front-end suspensions mass-produced in the recent past was the Dubonnet, used on the 1934 Chevrolet, with a modified version used on Opel and Vauxhall cars (Figure 8), and the pillar type, used on the 1941-42 Series 40 Nash, Lancias and Morgans (Figure 9).

In the case of the Dubonnet, steering and suspension geometry are good except for a slight variation in caster angle, but the slightest wear produces a prohibitive amount of geometric change in the front-end setup.

The pillar system is probably the ultimate in reducing unsprung weight, while keeping camber angle and wheel track constant. It has several inherent faults. Near center-point steering is all but impossible to achieve without an excessively low roll center. The pillar type, too, is af-

WHY DON'T THEY BUILD IT LIKE THIS?

BASED upon what we know, we feel that the ideal suspension would be somewhat like that pictured opposite.

First of all, since the new suspension system will have less twisting movement, it will be coupled with an integral chassis and body (similar to Nash and Hudson, but much lighter).

The *front end* would employ a modified version of the pillar-type suspension (A), with Lincoln-pioneered ball joints and all steering mechanism mounted in a sprung position. Camber, caster or toe-in change during wheel flexing would be non-existent and unsprung weight would be low. Power brakes would be of the disc or multiple spot type and constructed of alloy. Power steering would be an integral part of this system, requiring 4 turns from lock to lock.

The *rear end* would employ a similar pillar-type suspension (A) using constant-velocity, rubber-booted universal joints (B), driving axle shafts (C) from a limited-slip differential (D) attached thru rubber (E) to the body-frame unit. Again, unsprung weight would be low, and wheel movement would be up or down only.

The *limited-slip differential* (like the Hi-Tork unit featured in next month's MT) would allow both wheels to pull, even while turning a corner, and produce excellent traction on ice or wet roads.

Tires would be reduced in size to meet only the demands imposed upon them. They would be tubeless, and puncture- and blowout-proof under normal conditions.

Springing (as separated from suspension) would be by torsion bars (F), using the Packard principle of force transfer from wheel to wheel on the same side. The front and rear stabilizers would in effect be transverse torsion bars designed in such a way as to distribute opposing forces to the opposite wheels. A load stabilizer would be an integral part of the torsion springs.

This whole suspension would then be connected by a *true shock absorber system* having a central pressure brain (G). Its function would be to interpret the bump, and prepare the rest of the suspension to absorb it properly by increasing or decreasing the jounce, or rebound resistance, of the other shock absorbers. It would perform another vitally important function also, that of controlling body lean on a curve and nose dip or rear-end dip during braking or acceleration. Pressure control of this system would be thru a combination pressure and gyroscopic multiple valve head (G). This valve would supply the correct resistance pressure to one or more shock absorbers according to road conditions. Pressure for this system would be supplied by an engine-driven pump. The gyroscope in the multiple valve head would be powered by the car's electrical system.

There you have it. Possibly not the ultimate, for very few things ever are, but far superior in safety and handling characteristics as compared to our present-day cars. Nor is it a dream. Each part of this future chassis has already been perfected and could be put into production within a year. The rest is up to you. Interested?

flicted with undesirable wear when produced within production budget limits. Wheel movement is also severely restricted.

Other systems have been tried in Europe, some with almost phenomenal success. They also have their limitations. Trailing arm suspension, such as found on the Italian 2.5-liter Alfa Romeo and the German Volkswagen, is very successful (Figure 10). Low roll center and high fabrication costs are among its disadvantages. Yet it is far superior in many ways to the conventional American setup.

Europe has done much to reduce unsprung weight and increase stability of the rear-end suspension system thru either the "swing axle" (Figure 11) or de Dion suspension (Figure 12).

The swing axle usually has only one universal joint on each side, and axle movement is confined to an arc from the differential to the wheel, each wheel being independently sprung. Its advantage is simple and cheap construction; its disadvantages are excessive track and camber variations, producing a high roll center but rapid tire wear.

The de Dion system uses 2 universal joints for each half-axle, while the wheels are joined together by a de Dion bar. Its advantage is exceptional stability under practically all conditions. Its disadvantages are high manufacturing cost and more unsprung weight than the swing axle.

In both systems, engine torque is absorbed in the chassis. This results in equal wheel adhesion during acceleration, a very desirable characteristic.

Shock absorbers, a most important part of any present-day suspension system, have progressed in dependability and to some extent in application technique. Unfortunately, they are not equipped with an interpretive brain and therefore are delegated to the function of dampers rather than true shock absorbers. Their dampening principle, that of hydraulics, has a definite place in automotive suspensions of the future in 2 basic ways. They will 1st of all be equipped with a "brain" to interpret what type of shock they must correct, and 2nd, they will be a *part* of the integral suspension system and not an afterthought stuck on to cancel a fault.

So much for the past and present. Experience has indicated what is needed and one manufacturer, Packard Division, has at last broken the ice. Their new system is just the beginning of the ideal suspension.

Essentially the new Packard employs a torsion bar on each side of the frame from front to rear. At the front an arm extends outward at right angles to the bar and attaches to the corresponding front-wheel wishbone unit by an anti-friction link. At the rear an arm, also at right angles, extends inward and attaches to the corresponding rear-axle torque arm. These torque arms are pivoted in such a way that a deflection *upward* of the front wheels twists the torsion bars, exerting a force *down* on the rear wheels. Conversely, an upward thrust of the *rear* wheels exerts a downward force on the *front* wheels of the car.

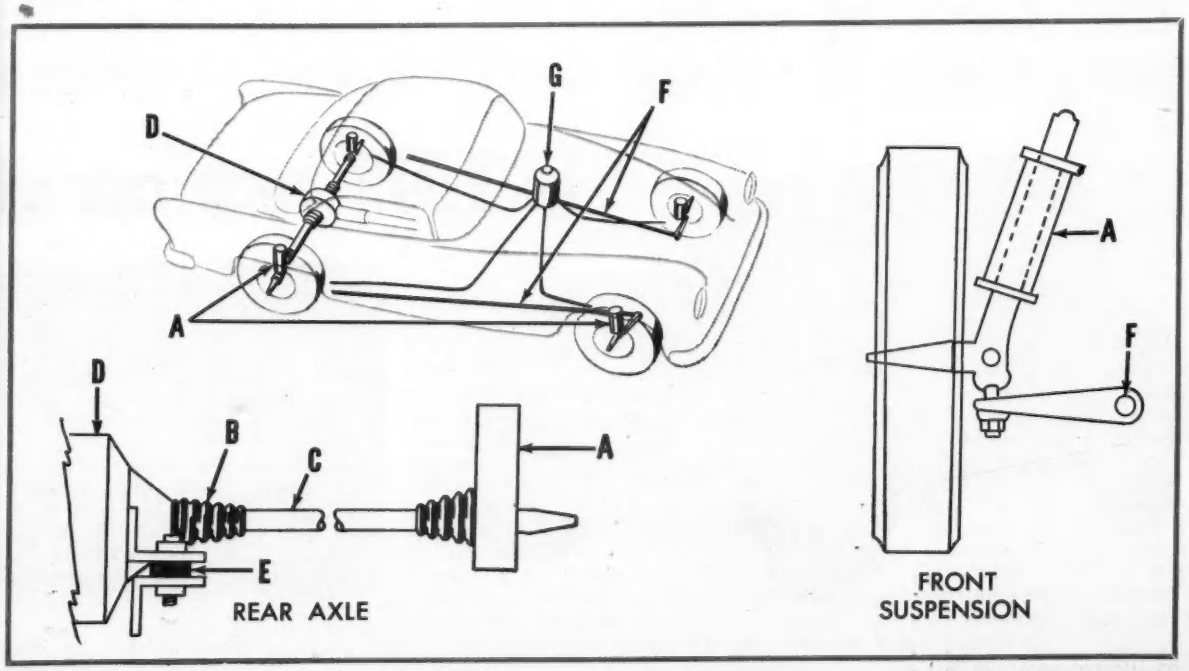
This system is very susceptible to varying passenger loads and therefore has a load levelizer or weight-compensating motor attached to 2 shorter torsion bars. These bars are so arranged that the front is attached to links of the compensating motor, while the rear of the bar is attached to its respective rear torsion arms also by links. A change of weight distribution causes a sensitive level switch to energize this load levelizer, wrapping or unwrapping these compensating torsion bars. This raises or lowers the rear end to pre-set static position. A 7-second time delay prevents a leveling change over normal road irregularities. (Just how good this ride is was covered in our Packard Clipper road test, June '55.)

There are many necessary changes to be made in this system before it becomes the ultimate in design. It does have one major advantage over the foreign car torsion bar systems: a transfer of forces *from wheel to wheel* and not from wheel to frame to body. (The major disadvantage of the conventional torsion bar is constant "spring rate" from bump to rebound, while a leaf spring offers a variable resistance. Except for the fact that a coil spring works in a vertical plane, it is similar to a torsion bar.) This opens up a whole new concept of body, chassis and suspension design. Heretofore, frame and body had to be stressed to absorb the tremendous forces exerted by road irregularities, which is no longer necessary.

What, then, will the ultimate suspension be like? Will it be the air ride, such as now employed by General Motors on their buses? A system of pneumatic cylinders (like those shown on the cover) at each wheel, plus a central "brain"?

Or will it be a system such as is now being worked on by Ford, wherein the hydraulic medium at each wheel cylinder is liquid instead of gas? This system would be more complicated from the standpoint that a 2-way liquid valve would be necessary at each wheel.

Take a look at the drawing below (description on opposite page).



THE STEAM CAR COULD COME BACK

Last month we considered the sad side of steam power. Here's a 2nd look at this fascinating fable and what it might soon mean to you.

by Homer E. Hogue

THE STEAM ENGINE is greatly superior to the gasoline or diesel engine for the propulsion of an automobile, in spite of the fact that steam cars were discontinued long ago. Why? There are dozens of reasons, so let's plunge right in.

Most people, even those who are good mechanics on gas cars, are puzzled when told that a steam car has no clutch or transmission of any kind. Anyone can see that a locomotive has only 2 cylinders, 1 on each side, and that the pistons connect directly to the wheels by rods. The pistons are located in the center of the cylinder, which is closed at both ends, and steam pushes alternately on one side and the other of the piston.

The crankpin on one wheel is spaced 90 degrees from the other; therefore, when one is on dead center, the other is at right angles, and is exerting maximum torque. As it turns from this position, exerting progressively less torque, the 1st crank is leaving dead center, and is exerting increasing torque. The combination of these forces and the push-pull action of the pistons produces practically an even torque with only 2 cylinders, and as the steam pressure is high enough to slip the wheels when starting, no transmission or clutch is necessary; the driving wheels are actually the crankshaft of the engine, and therefore the engine runs only when the locomotive is moving.

The operation of a steam car engine is exactly similar, except that the pistons operate on a short crankshaft which is geared directly to the rear axle. This is necessary to allow differential action. The crankshaft, with the cranks on each end, and the bearings are between the pistons.

The crankcase is bolted directly to the axle and extends forward, enclosing the connecting rods and cross-heads, which are the sliding joints in the rods near the cylinders. The cylinders are bolted to the front end of the crankcase with a space between to provide for easy adjustment and replacement of the piston-rod packing in the rear end of the cylinders. The front end of the cylinders is hinged to the chassis. The length of an older engine is about 4 feet from the center of the rear axle. In a new design, the position of the engine could be reversed and it would extend to the rear, under the long trunk overhang, allowing the floor of the car to be made very low, and with no center hump. It might be necessary to modify the engine to reduce its length, as by placing the crankshaft above the axle, or designing a horizontally opposed, 4-cylinder, single-acting engine similar in layout to the internal-combustion Volkswagen.

The boiler is located under the hood, and is heated by a blower-type burner, spraying atomized fuel oil into the combustion chamber. The motor of this burner also operates the pump, feeding water to the boiler in some designs, while in others the engine or axle drives the pump. There is also a very small pump for feeding cylinder oil drop by drop into the steam going to the engine, which is regulated or shut off by a throttle, or accelerator, operated by the driver. The engine is reversed by moving a pedal which causes the valves to work in the opposite direction. Under the hood there is also a radiator, to the top of which the exhaust steam from the engine goes. There it cools and condenses to water, and runs from the bottom back to the water tank.

The driving of a steam car is similar to a gas car equipped with an automatic transmission in that there is nothing to operate except an accelerator and reverse control, but it is even simpler because there is no LOW or DRIVE shift to make at any time. Operation is much quieter, as

Is THIS your car of

the engine never races, but runs at all times at the same speed in relation to the wheels, much slower than any gas engine. Stanley cars were usually geared 1.5 to 1, and the Doble and Gearless 1 to 1.

Acceleration and hillclimbing are vastly superior to any gas car, due to the characteristic of a boiler to store power. The amount of this "stored power," in a properly designed boiler, is enough to run the car about 2 miles after the burner is turned off. This power may be released instantly, to the extent of spinning the wheels, and, in addition to the constant steam generation, makes it possible to beat any gas car at acceleration, or climbing straight hills. And this stored power is quickly built up again when the car is running at a normal speed, and even faster when descending hills, due to the excess steaming capacity of the boiler.

The reason for this storing of power is not the steam in the boiler, but the great heat to which the water (about 8 gallons) has to be raised to make it give off steam when under a pressure of about 600 pounds per square inch. This is more than 500° F. Now, water will produce steam at only 212° F under atmospheric pressure; consequently, when the throttle is fully opened, causing the pressure in the boiler to drop, the water starts to generate steam spontaneously. As the 8 gallons in the boiler can generate a great deal in this way, in addition to the usual method, this explains the tremendous acceleration and hillclimbing ability of the steam car.

For mountain driving, the steam car has it all over the gas car. There is no such thing as overheating, there is no racing engine or whining gears; when descending, the engine will exert any desired degree of braking effort, up to a full stop.

When driving in traffic there is no fear of sudden stalling. Nor is there any fear of being stopped in heavy traffic on account of a speck of dirt in the fuel system, or an electrical failure. If these things happen to a steam car, it will run a mile or 2 on its stored power.

As to sustained speed, even the Doble car of 30 years ago would maintain 75 mph, and more speed could be provided by a larger boiler. Does a car that will make only 75 mph sound as tho it would give inferior performance to a gas car that will do 100? That is not true, as great power is needed only for short periods, such as for acceleration or climbing straight hills. It can't be used on winding mountain roads, and the stored power is waiting to be released at any time. This stored power would enable the steam car to pass almost any gas car on a hill.

When the steam car stops, so does the engine. There is no annoying idling. If the burner is not working properly (corresponding to poor carburetion but much less likely), steam may not be produced fast enough to maintain 75 mph, but that car will run perfectly at normal speeds. If the rings or valves are leaking (also much less likely in a steam car), the engine will run as smoothly as ever, but will waste steam. It will not waste oil.

A modern steam car would handle and corner better than a gas car, due to the good weight distribution afforded by locating the boiler under the hood, and the engine behind the rear axle. The steam engine is especially suited to independent rear wheel suspension, similar to the Mercedes and Volkswagen designs, because of the small diameter of the axle gear. This location of the engine makes possible a very low floor, with no center hump, and the weight distribution is better than in either a front- or rear-engine car.

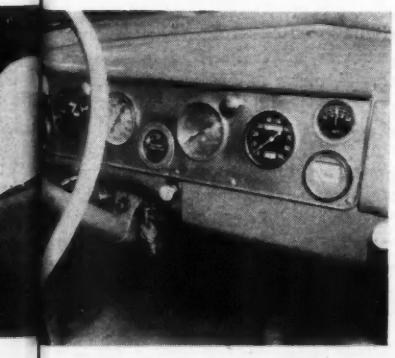
Of course there is a disadvantage to set against all these advantages. A type of boiler that will provide the stored power and overload performance will require 2 minutes to raise steam to half-pressure from a cold start. Half-pressure is plenty to start on. If a flash boiler is used, this can be done in less than a minute, but this boiler has very little stored power, and has other disadvantages. The figure of 2 minutes was established long ago by Doble for their water-level boiler with 150 square feet of heating surface.

A start from a perfectly cold boiler would not have to be made if the owner expected to make a number of trips in a hurry during the day. He would simply leave the burner turned on, and it would keep up full pressure, going on and off automatically like a domestic water heater (you don't consider it too wasteful to leave your water heater on, do you?). This practice eliminates entirely the "great disadvantage" of "long waits" while steaming up. Even if the burner isn't left on, a 2-minute wait in the morning is not necessary, as the owner can turn on the burner switch some time before he is ready to start. Or the clock in the car could easily be designed to turn on the burner at any pre-set time, exactly as a stove clock turns the oven on by itself.

Starting up with a cold engine would be perfectly smooth, there being no unevenness or tendency to stall, as with a gas engine. Some of the steam entering the cold engine would condense to water, but this would be blown out by the exhaust at every stroke, providing the exhaust ports were located as low as the lower level of the horizontal cylinders.

As to economy, the steam car gives a few less miles per gallon than the gas car, but can use fuel oil costing less than half as much. Diesel fuel, kerosene, or gasoline can be used intermixed without burner adjustment. (*Continued on page 63*)

of the future?



THE ALMOST SELF-CONSCIOUSLY MODEST car at the left may not fit your dreams, but it's a fair bet that you would like its performance. Its inventor, Charles F. Keen, of Madison, Wis., does the utterly simple job of driving his "Steamliner" from behind the instrument panel shown. The dials, from left to right, indicate: temperature (top); water level (bottom); steam pressure (normal is 1200 pounds); next is an auxiliary gauge, and then we continue with engine lubrication; back pressure; speed; generator charging rate (top), and fuel level (bottom). Keen didn't tell us what that is behind the boiler. The newspapers, where you may have seen something about the Steamliner, more or less lost their heads over it. Keen stoutly denies, for instance, that it will "run on moonshine," but it is happy on a variety of fuels, as indicated in the story above. (The car gets 15-16 miles per gallon of fuel, and about 25 miles per gallon of water.) Neither is Keen "afraid to open it up on the road," another old saw gleefully sharpened by reporters. But there are other quite legitimate eye-openers. Sports-car drivers have been delighted with its take-off. One man remarked that it moved as silently as tho pushed by someone wearing rubber shoes. And it is possible to get going extremely fast without realizing it, since the wind and tires make the only noise. "Once full pressures and temperatures are obtained," the inventor writes us, "the car can be started and driven on almost any main road in the country by means of the throttle only." A word to the practical: the Steamliner's safety has been recognized by an insurance company, which has covered it at regular rates.

MT RESEARCH road test

'55 Buick Roadmaster, Special

Looks and expensive fee characterize both car

Few makers offer this price spread, similarity in appearance of entire line. Roadmaster has gold trim, "cleats" on deck lid

by Jim Lodge

WHEN MT RESEARCH brought you the performance story of the hottest of the Buicks—the Century—in April, we were faced with our own curiosity, as well as your requests, about the biggest car in the Buick lineup. It was then that we scheduled the Roadmaster road test for this issue. But when Buick's Los Angeles Zone Office offered a Special for testing, we just couldn't pass up the rare opportunity to do a double-barreled test of the lowest- and highest-priced Buicks.

Test cars: *Special* hardtop coupe (the best-seller, and the only model available at the time for road testing), with Variable Pitch Dynaflow, power steering, power brakes, custom upholstery, circular "redline" speedometer, radio, heater (all extra-cost equipment). *Roadmaster* 4-door sedan equipped with Dynaflow, power steering (both standard), power brakes, electric windows, power seat, radio, heater.

Engine: *Special's* engine is small-bore version of overhead-valve V8 introduced in '53. Displacement is 264 cubic inches; compression ratio with Dynaflow is 8.4 to 1; with synchromesh, 7.5 to 1. Topped by a 2-barrel Rochester carburetor (it used a Stromberg until May of this year), it puts out 188 bhp, 38 more than in '54. Unlike Century and Super engines, which use thinner head gaskets to kick up compression ratio when Dynaflow-equipped, Special achieves compression boost with higher-domed pistons.

Roadmaster's engine looks like same thing—90-degree V8, vertical valve covers, components in same positions. Difference of 48 hp comes basically from 330 cubic inches displacement (4-inch bore instead of Special's 3.62-inch), 4-barrel carburetor.

Other options: *Special* is available without those options on MT's test car. Cost-conscious buyers can have less-deluxe steering wheel, conventional needle-type speedometer (4 out of 10 are buying the redline type), standard upholstery. Newest option is latest body style: 4-door hardtop (limited to Special and Century). Three-speed transmission is standard equipment, uses 3.9 rear axle ratio instead of Dynaflow's 3.6, should give good low-speed performance even with reduction in engine's compression ratio.

Roadmaster's option list may seem shorter, but only because some items are standard. Its list, like Special's, shows all latest gimmicks, including air conditioning. Stick-shift transmission not available on Roadmaster.

WHAT THE CAR IS LIKE TO DRIVE

Exit and entry: Easy entry common to both cars despite difference in size of door opening. Windshield wrap-around leaves cutaway that won't get in your way. Seats seem high at first but wheel is raised to let you slide under it without a squeeze.

Driving position: *Special's* manually adjusted seat adapts itself to most drivers' wants. Roofline is low, but interior headroom doesn't suffer. Three seated in front seat limit driver's elbow room, but good-sized wheel allows positive car control. Instruments can be scanned, but wheel crossbars can hide gauges on panel. Dynaflow quadrant is on column, closer to dashboard this year, still very legible. Try out redline-type speedometer as well as needle-type if you're Buick-shopping. Both are easy to read night or day.

You'll know you've stepped up a few notches when you sit behind wheel of the *Roadmaster*. Aside from chrome not found in Special, you'll notice different

instrument setup. Here, original drum-type redline speedometer stretches horizontally across housing placed high on the panel. MT's drivers preferred this redline to the circular type, partly because of its position, partly because of added legibility. Below it, a full line-up of gauges are in separate housings. Setup is good—but badly hampered by reflections from chrome around dials.

Vision: Wrap-around windshield free of distortion; good vision to rear, no blind spot at right side. Can't give wiper sweep on either car full bill of health because of unswept area at sides and center of glass. Both are improved over last year and still better than some. Special's windshield is lower at top than Roadmaster's, has less rearward slope, but smaller model boasts greater rear-window glass area than big one. Inside rear-view mirrors allow excellent rearward vision, but can move downward out of position when car hits bump or washboard road. Broad, high hood isn't on par with some for maximum low-forward visibility, but automatic seat adjuster on Roadmaster alleviates problem of spotting fender tip. Instrumentation on both cars was not reflected into windshield day or night. Brake pedal canted slightly to left—just right for left-foot braking.

Photos by Bob D'Olivo

Operation of accessories: Buick's step-on parking brake, subject of praise in past tests, remains a most-liked feature. All controls on Buick are handy for driver, all positive in operation. Operation of 3-knob, 2-switch heat and vent system is same as for '54; improvement is over '54 owner's manual, where operating instruction was boiled down to a 39-line description and chart showing 55 possible control combinations.

Windshield wipers on both cars operated smoothly, stuck to glass well in heavy, windy rainstorm. Roadmaster's wiper control had added feature: extra-fast position, designed for use in heavy downpour. Good idea, but gives limited sweep in this fast-driving position.

Each test car had signal-seeking radio with floor-mounted pushbutton—worthy of mention because it lets driver keep his hands on wheel, eyes on road while changing stations.

Ease of handling: Equipped as MT's test car was with power steering and vacuum-assisted brakes, *Special* still feels like heavy (4210-pound) car Buick's supposed to be in minds of buyers, but it's easy to drive. Buick's power steering requires some initial pull, but turns freely past that point of resistance, becoming power-boosted "all-of-a-sudden." We note this as one reason why Special demanded constant steering correction on straight or winding roads—in town or on highway. It was whipped aside severely by streetcar tracks and road shoulders. Its lighter weight and smaller tires help make Special differ in this respect from the steadier Century (same chassis).

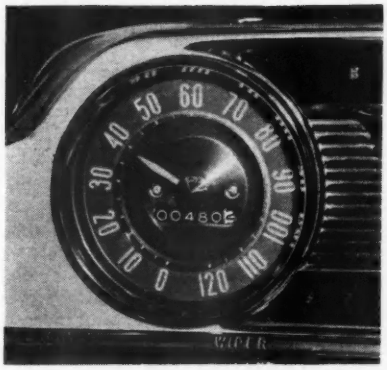
Roadmaster is entirely different kind of car from Special. While suspension is identical in layout to other Buicks, individual components differ in action to accommodate heavier (4590-pound), long-wheelbase car. Rear tread is wider than that of Special. Ease of handling is little different—it's not a hard car to drive; we found that constant correction was unnecessary, that car was unperturbed by ruts or car tracks. But unlike smaller car, Roadmaster's front end sought its own path along winding roads. Here steering correction was a must, if only to find out what the front wheels were doing. This "nosing about" diminished as speed increased.

Acceleration: Taking off in normal DRIVE range (with throttle floored to switch *Special's* Dynaflow blades to "high" pitch) is no particular thrill. Time to 60 mph, 16 seconds; to ¼-mile, 20.4. By using LOW range up to true 57 mph for best results (4500 rpm), these averages were lowered to 13.8 and 19.4 seconds. From 50 to 80, Special trailed MT's Century test car by 5.5 seconds.

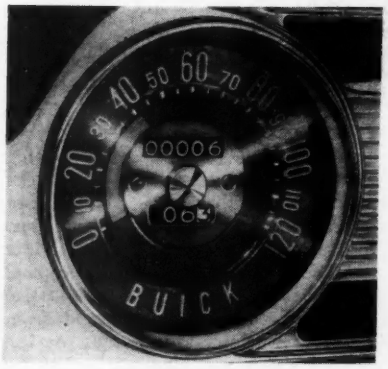
Here's where many of us were in for a big surprise: the *Roadmaster,* it seems, is a pretty hot car! In DRIVE range, its 0-60 and ¼-mile times were 12.5 and 19.2 seconds, respectively. But by using LOW gear to gain maximum acceleration (keeping it in LOW up to 64 mph, 4400 rpm), we trimmed these times considerably, getting a 0-60 average of 10.2 seconds, and a ¼-mile average of 17.6 seconds. The larger car's 50-80 time was a creditable 12 seconds.

Braking: Non-swerve, 30 mph stops measured 41 feet for both cars—good stopping in any class. Nose-down was not severe, although initial deceleration from speeds above 45 mph brought weight transfer that lightened rear end enough to keep back tires from really digging in.

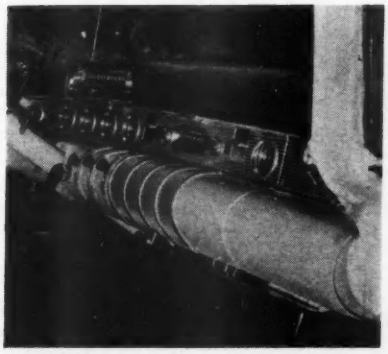
Occasionally, hard brake application brought on uneven wheel lockup. Can be explained by fact that with Bendix-type brake, the more self-energizing action, the more sensitive it is to brake lining composition, dirt on the linings, or other variables that may cause an unbalanced con-



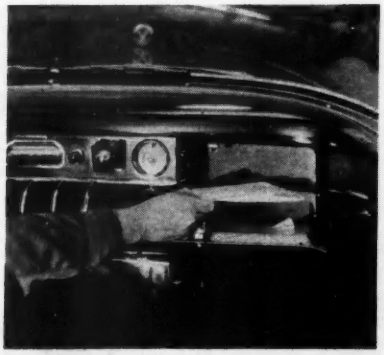
Standard on Special, this speedometer was considered more legible by some drivers. Others like test car's "redline"



Disc-type redline indicator, mechanically similar to one at left, uses circular red line, not pointer. It's an extra-cost item



Roadmaster's instrument panel displays more chrome, horizontal speedometer at top. Controls are set up like Special's



This is Special's glove compartment. As in Roadmaster, it's a long reach for driver. There's some sun glare off panel top

'55 BUICKS continued

Both were capable of matching 30 mph stopping distances of much lighter cars

Buick's exclusive step-on parking brake still draws rave notices from MT's testers

dition at any wheel. Therefore important for Buick owners—as well as owners of other makes with self-energizing brake system—to pay particular attention to brake care and adjustment. If you suspect you've scorched the lining (as in an emergency stop) have the linings checked.

Roadability: MT's drivers found *Special* could be surprisingly roadworthy—if conditions were to its liking. That is, it maintained its footing on normal road surfaces in tight curves or even on broad high-speed turns buffeted by heavy gusts of wind. But a rough spot on turn would make it hop to one side much like a lighter, more stiffly sprung car. It was hard to make the softly sprung Special slide, but once in a full skid, it offered no surprises, coming out in a power drift with relatively little lean. True power recovery is best confined to low speeds, where extra Dynaflow boost is available.

Roadmaster is a big car—and that's more evident in high-speed maneuvering where a sudden swerve or pitching carries some authority than it is in parking or moving thru tight traffic. Thrown into a tight turn, car leans on its coil springs and rebounds—then dips again and straightens up, keeping up this oscillation thruout turn. As speed increases, however, bounding is less noticeable; thus you feel that the faster you accelerate *out* of the turn, the more stable the car. Sticks well, regardless of how it feels its way thru turns. Not-too-responsive steering and front-end softness spells lack of response in Roadmaster, some lack of confidence for driver. In top speed runs, for instance, slightest steering wheel movement, as when correcting for crosswind, would cause car to wander menacingly, finally setting up definite "crabbing" motion. Danger here, as with any car traveling at high speed, is in over-correcting for instability (a problem heightened by easy-turning, quick-turning power steering) either on test strip or in emergency situation on highway.

Ride: *Special's* riding qualities were as surprising as Roadmaster's performance. Contributing factor here is car's fantastically quiet engine. On smooth roads, Special was literally out of its class. But tar strips and cracks in cement paving bothered it (you could feel and hear irregularities in the surface). MT's test car was not undercoated, which may have made a difference. Ride was disturbed by general road noise at times, altho wind noise was at minimum.

The *Roadmaster* is a different proposition. While there was some body movement, normal highway dips and bumps were smoothed out successfully. Seems strange that the higher-revving Special engine should possess quieter-running characteristics than well-padded Roadmaster—but it's true. Both cars shook heartily on our washboard test strip, but there was less steering wheel vibration and road noise in the heavier Roadmaster.

WHAT THE CAR IS LIKE TO LIVE WITH

Riding in the front seat: Well-finished appearance. Legroom in *Special* for the longest-legged driver or passenger. Tall folks won't bump their heads. Custom upholstery in test car featured plastic headlining, attractive color and design of seat covering, door panels. (Standard trim uses plastic only on wear-spots of seat, and on door panels.) Bulging roll at lower edge of dash panel can be uncomfortably close to passenger's knees if driver has seat in forward position. Cigarette lighter hangs below panel at center, is only out-of-place accessory in either car. Heel-over and sideway not too bothersome to passengers.

Roadmaster's interior, similar to Special's in layout, has more chrome, richer-looking upholstery, attractive headlining. Seat is as comfortable as in smaller car, more luxurious. Roadmaster offers about an inch more legroom, less than an inch more headroom.

Riding in the rear seat: Because MT's *Special* test car was a hardtop coupe (and as such had foreshortened rear seating dimensions), we'll borrow from our April test report on the Century sedan and say "plenty of room . . . for heads, shoulders, backs, legs, toes." Climbing into *Roadmaster* with unrestricted move-

TEST CAR AT A GLANCE

'55 Buick Special with Dynaflow

REAR-WHEEL HORSEPOWER
(Determined on Palmini Engineering's Clayton chassis dynamometer. All tests are made under full load, which is similar to climbing a hill at full throttle. Observed hp figures not corrected to standard atmospheric conditions.)

45 road hp @	1600 rpm and 21 mph
65 road hp @	2000 rpm and 33 mph
76 road hp @	2500 rpm and 54 mph
Max. 96 road hp @	3700 rpm and 76 mph

TOP SPEED
(In miles per hour over surveyed ¼-mile.)

Fastest 1-way run	105.0
Slowest 1-way run	103.3
Average of 4 runs	104.1

ACCELERATION
(In seconds, checked with 5th wheel and electric speedometer.)

Standing start ¼-mile (71 mph)	19.4
0-30 mph	4.4
0-60 mph	13.8
10-30 mph	3.9
30-50 mph	6.1
50-80 mph	17.2

SPEEDOMETER ERROR
(Checked with 5th wheel and electric speedometer.)

Car speedometer read	34 @ true 30 mph
	50 @ true 45 mph
	66 @ true 60 mph
	82 @ true 75 mph
	112 @ top speed

FUEL CONSUMPTION
(In miles per gallon; checked with fuel flowmeter, 5th wheel, and electric speedometer. Mobilgas Special used.)

Steady 30 mph	23.3
Steady 45 mph	19.4
Steady 60 mph	17.6
Steady 75 mph	15.0
Stop-and-go driving over measured course	12.7
Tank average for 1153 miles	12.4

STOPPING DISTANCE
(To the nearest foot; checked with electrically actuated detonator.)

30 mph	41

Tilted slightly to left, brake is good for left-foot touch, limits pivot to gas pedal

ment, you don't have to look around to know you're at top of line—just move around! Headroom is greater than in Special by over an inch, and you can stretch your legs 4 inches farther than you can in a Special sedan. Shoulder room and hiproom expanded 2 inches and over 3 inches, respectively, from Special.

Fuel economy: Altho more powerful than in '54, *Special* maintains last year's economy at lower speeds. But more important, it upped '54 car's mileage at 60 and 75 mph by over a mile per gallon.

High-octane gas is recommended for Specials with Dynaflow, regular is good enough for standard-shift models. Traffic mileage is down by same amount. Our "driving around" mileage (tank average for the entire test, excluding actual performance tests) isn't as low as we anticipated, considering the temptation to take off under "high pitch" from a stoplight.

The Economy-Run-winning *Roadmaster* (19.7 mpg average) raised some eyebrows, not only with its entry into the run, but with its Class D win. Perhaps inefficiency of early Dynaflow units linked to old '48 (et al) straight 8 has influenced your opinion of Roadmaster's efficiency—in which case you'll probably wonder about our steady-speed averages ranging from 20.1 mpg at 30 to 14.3 at 75 mph.

Are the cars put together well? Regardless of spread in price between Special and Roadmaster, both cars were as good-appearing and as well-fitted as any of our '55 test cars. Minor troubles plagued each: *Special's* turn signals were inoperative at end of test, and its hood vibrated at all speeds, on all road surfaces. Trunk interior showed some dampness after a rainstorm. *Roadmaster's* left rear doorlatch was balky—passenger had to put his shoulder against the door to push it open. Roadmaster's hood also vibrated, but only at higher speeds and on rougher roads. Annoying to driver and passengers were rattling hubcap inserts on the Roadmaster: plastic discs at center of wheel covers loosened up at start of test, rattled until end. (Same hubcap setup in other Buicks tested—but not a sound from the others!)

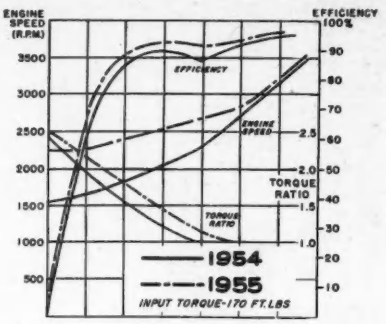
Basic components in each car were generally above par. Transmissions were silent, engines ran smoothly at all times—no detonation on Mobilgas Special, no valve noise. Both cars ran well on tuneup specialist Bob Palmini's Clayton dynamometer (at Palmini Engineering in South San Gabriel, Calif.); neither boiled over or balked at maximum rpm output. *Special* had some axle whine, *Roadmaster* had just a whisper of same. Neither car had body rattles. Finishes were excellent, fit of panels good.

Servicing: Not a bad setup for do-it-yourself fans. You don't have to be double-jointed to get your hands dirty on a Buick engine. Both have monstrous air-cleaners that have to be removed for easy access to distributor or coil. Valve mechanism readily exposed; 12-volt battery, generator, accessory units (power steering pump, power brake cylinder) easy to get at for service.

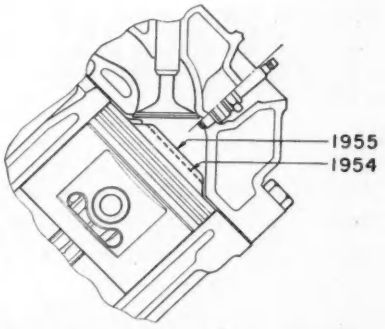
SUMMING UP

Buick brings to buyers something unique: characteristics common to the entire line of cars. The smaller *Special's* 1st-glance details, but for a nameplate or two, a porthole on each side, and different parking lights, are like Roadmaster's. It's powered by a V8 that's directly akin to the more powerful engine in the Roadmaster; both cars have Buick's torque converter with dual turbine stage and variable pitch stator blades. Interiors are alike in general application. Is it any wonder that Buicks have rewritten sales history?

If you like compactness, there's the *Special*. Rather than offer a power package, Buick goes all-out and offers the big engine in the same body—the Century. The Super? It meets buyers head-on in another competitive price class, catering to the spread from Special and Century to Roadmaster, but with roominess and trim more like the Roadmaster than the others. And (*Continued on page 46*)



Results of Dynaflow changes are charted here, but driving car is more impressive



Vertical-valve V8 has higher compression ratio, uses higher-domed piston for boost

TEST CAR AT A GLANCE

'55 Buick Roadmaster with Dynaflow

REAR-WHEEL HORSEPOWER
(Determined on Palmini Engineering's Clayton chassis dynamometer. All tests are made under full load, which is similar to climbing a hill at full throttle. Observed hp figures not corrected to standard atmospheric conditions.)

67 road hp @	1800 rpm and 23 mph
79 road hp @	2000 rpm and 29 mph
104 road hp @	2500 rpm and 49 mph
Max. 129 road hp @	3700 rpm and 85 mph

TOP SPEED
(In miles per hour over surveyed ¼-mile.)

Fastest 1-way run	110.9
Slowest 1-way run	107.1
Average of 4 runs	109.2

ACCELERATION
(In seconds, checked with 5th wheel and electric speedometer.)

Standing start ¼-mile (79.7 mph)	17.6
0-30 mph	3.5
0-60 mph	10.2
10-30 mph	3.4
30-50 mph	4.6
50-80 mph	12.0

SPEEDOMETER ERROR
(Checked with 5th wheel and electric speedometer.)

Car speedometer read	30 @ true 30 mph
	45 @ true 45 mph
	59 @ true 60 mph
	73 @ true 75 mph
	110 @ top speed

FUEL CONSUMPTION
(In miles per gallon; checked with fuel flowmeter, 5th wheel, and electric speedometer. Mobilgas Special used.)

Steady 30 mph	20.1
Steady 45 mph	18.8
Steady 60 mph	17.0
Steady 75 mph	14.3
Stop-and-go driving over measured course	12.4
Tank average for 1626 miles	13.0

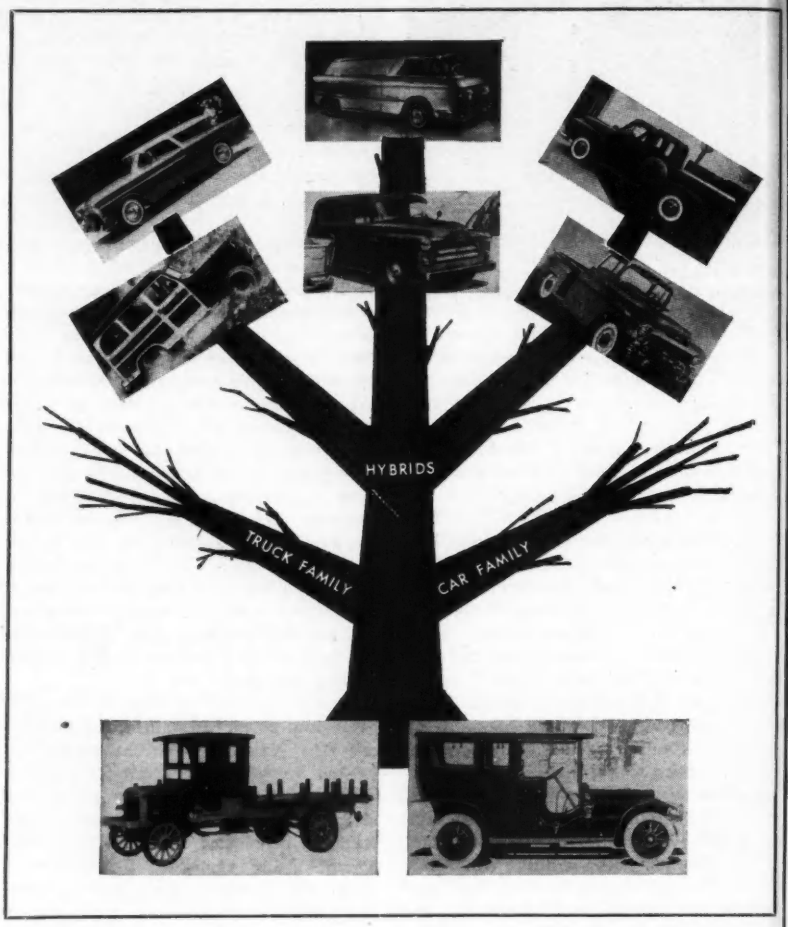
STOPPING DISTANCE
(To the nearest foot; checked with electrically actuated detonator.)

30 mph	41

TRUCK TRENDS

Are trucks one of the proving grounds for engineering innovations on passenger cars? Here are some new truck developments that may be found on your car of the future.

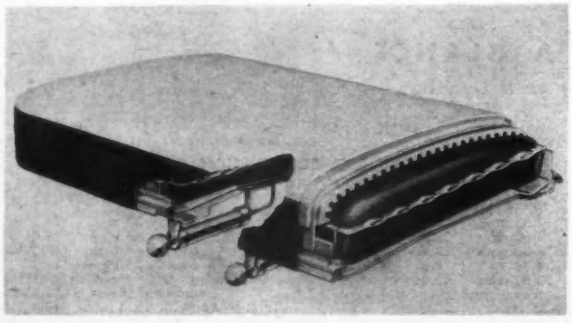
by Jim Potter



TRUCKS HAVE BEEN ACCUSED of lagging 10 years behind passenger cars in styling, but what about their engineering? Power brakes and power steering were both in use on trucks several years before their widespread use on passenger cars. Last year bus passengers began riding on air, utilizing the pneumatic principle to cushion jolts and jounces; some trucks incorporate the air-ride principle in the driver's seat.

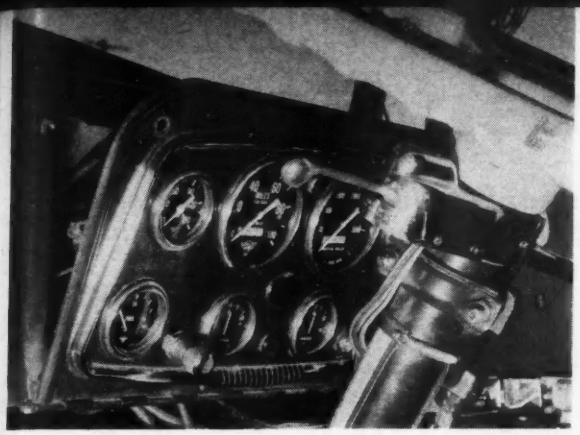
On these pages we've accumulated many innovations that are now on trucks. It is a well-known fact that there are millions of trucks used for part-time passenger service, especially in small towns and rural areas. We think it's not mere conjecture on our part that at least some of these things will eventually find their way onto your passenger car, for your comfort, convenience, service, and safety.

Photos by Joe Moore

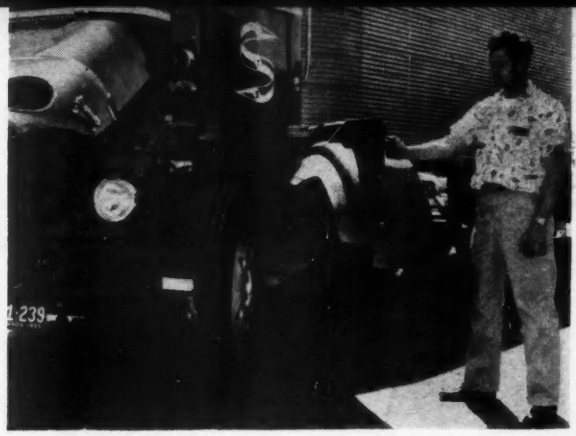


Two air compartments within foam-rubber and cotton-padding seat are inflated manually and individually to provide smooth ride in accordance with weight of driver and passenger

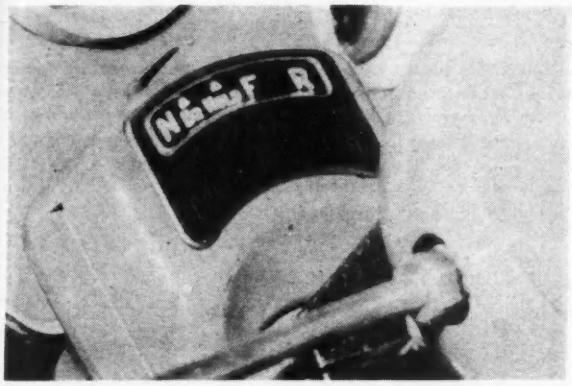
Design of emergency handbrake on deluxe Chevrolet pickup gives driver real leverage for easy operation. Mounting on steering column requires no fumbling, a good safety feature



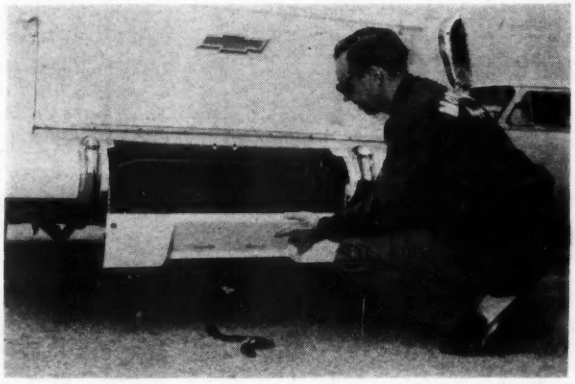
All necessary instruments and controls on this Peterbilt truck are grouped and mounted on hinged instrument panel. No groping or standing on one's head is necessary for servicing



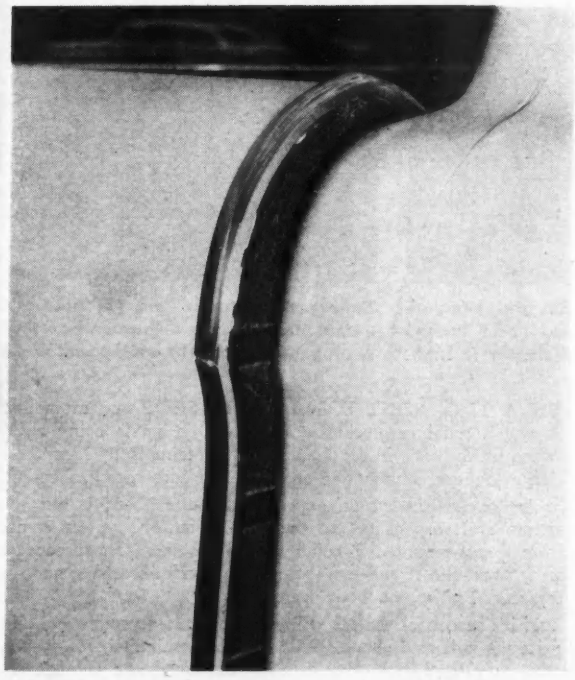
Quick accessibility for servicing is provided by hinged fender which swings out of way. Design adaptable to passenger cars should future vehicle be like GM's experimental L'Universelle



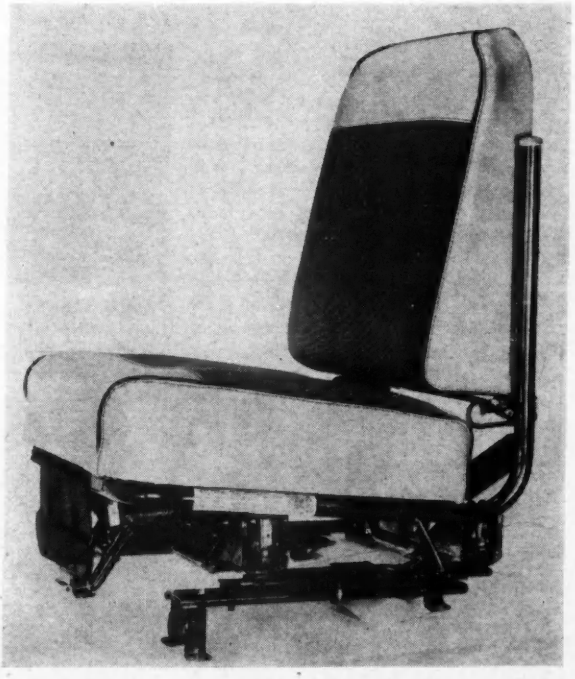
"HOLD" position on Hydra-Matic selector permits driver to hold transmission speed with no further upshift or downshift; would possibly be useful on passenger cars pulling trailers



Spare tire compartment on Chevy Cameo truck allows quick accessibility and frees carrying area from protuberances; would make luggage space on passenger cars more useful



First use of Fiberglas with a metal truck is found on pickup side panel; indicates acceptance by manufacturers of practicality of material for use also on hoods, deck lids, etc.



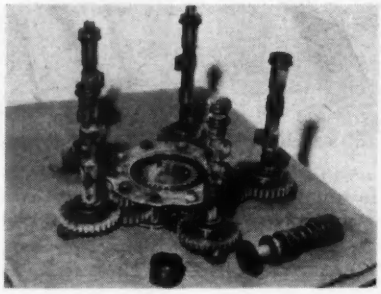
Bostrom Mfg. Co. seat provides a torsional rubber spring suspension system that isolates driver from usual erratic pitches and jolts on trucks, gives both static and dynamic comfort

Five-cylinder Folly?

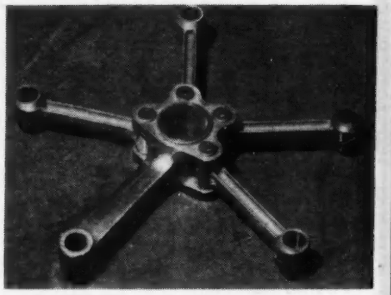
Some think so, but this radial engine sports car is a gold mine of new and ingenious ideas

by Al Kidd

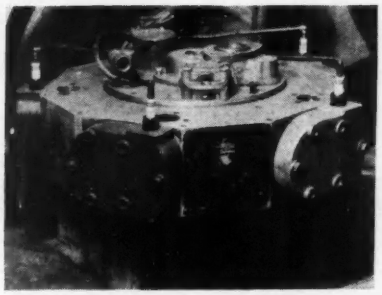
Photos by Joe Moore



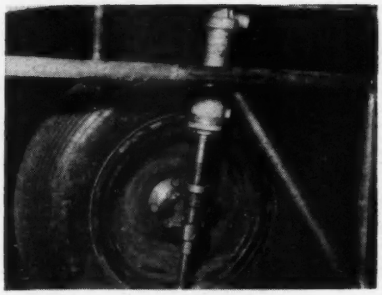
L-head radial engine utilizes 5 camshafts which also drive the various accessories. Note comparatively large valve assembly



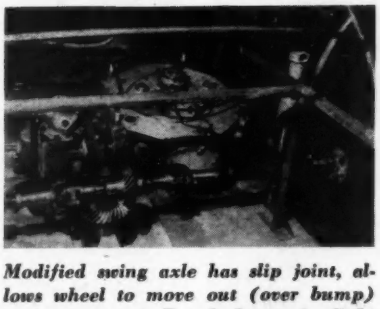
A master rod and 4 parasites are heart of the engine. Only the master operates directly upon single-throw crankshaft



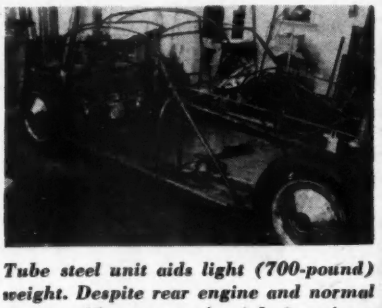
Distributor, magneto, and plug arrangement are visible on 125-pound block; 128 cu. in. give 75 bhp at 3800 rpm



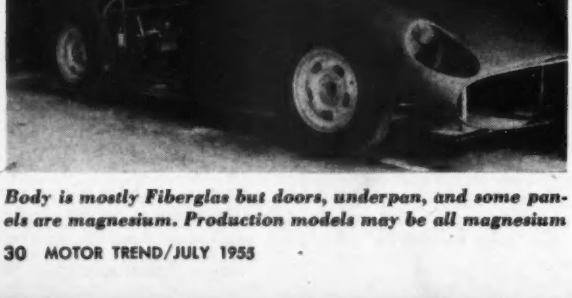
Hydraulic-strut front suspension operates thru oil and air bladder in cylinder. Wheel travel is adjustable by varying oil



Modified swing axle has slip joint, allows wheel to move out (over bump) as it moves up. Tread change is slight



Tube steel unit aids light (700-pound) weight. Despite rear engine and normal seating, 45 per cent of weight is at front



Body is mostly Fiberglas but doors, underpan, and some panels are magnesium. Production models may be all magnesium

IN A TINY WEST LOS ANGELES SHOP an automobile which could revolutionize sports car design is being built. When finished it will represent years of planning by Larry Frazier, a longtime automotive engineer and auto racing adherent.

The entire car has an experimental aura about it but the engine and suspension are the highlights. The power comes from a rear-mounted 5-cylinder radial engine. The suspension is by hydraulic struts—no springs, no shock absorbers, and, so says Mr. Frazier, no body lean.

If it's successful the car will go into limited production. The price tag will read about $8000 and the car is designed to perform on a level with other cars in that price class. The conventionalists will shake their heads and say, "Prove it to me." Larry Frazier intends to.

DIOGENES in the SHOWROOM

"He is," says this ex-car dealer, "childishly searching for a meticulously fitted and finely finished mechanism." That may not be what he gets . . .

by Stafford Rolph

IF YOU WERE entertaining the idea of entering upon a career of crime and wanted to know if it paid off, you could do far worse than ask a mugg who has just got out of the jug. So, if you want to buy a new car, why not ask me, who has just gotten out of a dealership?

Few are the new-car dealers who do not envy Fred Allen on his *Treadmill to Oblivion*. That is a leisurely and not too frightening way to go, compared to the toboggan slide they are on. The factory screams along right behind them with no brakes and is about to squash them at any moment, so their only chance for survival is to pick up speed by trading for something they don't want and paying more for it than it is worth. When I was in business I always hated to sell a car on Friday the 13th because of a costly experience I am ashamed to relate, and won't; but one of my partners in crime got so he would hardly sell a car on any Friday after a lady took delivery of a new car and immediately went shopping in it and came back and slapped him in the face with a fish.

When she got to the market the back door wouldn't close and the trunk wouldn't open. "But cuss it," the dealer told me with tears in his eyes, "she wanted that cerise-lavender-green job that I hadn't had a chance to rebuild." Let me hasten to explain that we in the racket do not call it "servicing" a new car, we call a spade a spade and "rebuild" it, and that is just what it takes unless you like fish in the face.

In the old Keystone comedies you would see a car driving down the street, and a fender would fall off. Nowadays, the magnificent production facilities have shortened the distance required until all you have to do is back one off the transport and something falls off. We have a million laughs, always something good like the $100 set of automatic windows that won't come up in a pouring rain.

All the car manufacturers are expecting an A bomb to fall on their plants within the hour, and that explains why they are so anxious to get the cars away from their door. Their dear dealers can rebuild them with their willing hands. But can they? I always thought I was good, but not that good. When a customer calls his wife and says "Hey Myrtle, look at the swell carpet in this one, if it only fit," are you to assure Myrtle that any competent housewife could make that teeny little carpet fit with the aid of her household scissors and curtain stretchers?

And how are you going to stretch that dainty piece of stainless steel that covers the doorsill and makes its graceful curving reach for the doorpost an inch too soon? It curls up like the toe of a Persian shoe right in Mr. Newowner's face every time he opens the door. Then he goes thru yoga contortions to enable him to get under the new curving windshield with its built-in phantom reflections which make him think he is seeing flying saucers. All this gets on his nerves just before the end of the warranty period and he is in your lap. Let's hope it's not Friday. I have given up all hope of curing the cars, but I did invent an auto dealers' derby hat with a built-in dry icepack. It should have been a boon but most dealers are so insensible to pain by now that it did not sell well.

You can sink way over $4000 in one of today's cars and a block away it will be mistaken for one of "the 3." Not many years back you could identify a car as far away as you could see its radiator. Those who *loved* cars—and that was an appellation which meant just what it said—could tell the make by the sound of its engine, for cars then not only did not look alike, they did not sound alike. Each car had its own tone, no two 6s sounded exactly the same, and then there were 4-, 8-, and 12-cylinder jobs, and if you wanted to pour $4000 into a car you could be sure there would be no unsanforized brother tagging along behind you with a $1000 duplicate.

"But my car *is* different from yours," says Mrs. Junebride, "this 2-tone blob of mine ducks down before it gets clear back. And aren't the new colors pretty?" Well, they may be pretty, I won't argue with an artist like Henri de Toulouse-Lautrec, who used them years ago in painting his can-can dancer's drawers.

Here is my advice, and I am not kidding you. Your new car can still be yours alone. Just be sure it's put together right, and that will make it truly distinctive. Buy your new car with the same mental attitude you would employ if you were buying a classic. In buying a classic you would expect to restore it before you received full pleasure from it. Expect to have your new car "restored" to the condition of perfection it was supposed to be in when presented to you for sale. Then take that word "perfection" with a grain of salt, for after all the tuning, adjusting, aligning, balancing, and whatnot, you will still not get a perfect car.

But you can avoid some costly future headaches. That barely perceptible ripple in the flat metal along the side is an "extra" you will pay for later. Some appraiser, looking your car over far more carefully than you did, will assume that it is a bump which has been straightened out and repainted. So pass this one up, even if it is that pink that Aunt Lucy likes, and buy the orange one that nobody likes if it proves to be more nearly *perfect*.

To elaborate on this theme (it's in B-flat, I think, if any of you want to accompany on your mouth organ), why should it be such a secret what the rear-axle ratio is? *Why* is it none of the customer's business how many times his engine has to turn to get the wheels around just once? The little manual which comes with your new car will tell you how to get gin spots off the new nylon upholstery (don't get gin on the plastic part of the upholstery, for it may raise a blister which will explode at an outside temperature of 91° and blow the seat out of your pants) but it won't tell you what the axle ratio is, or what the sparkplug gap should be, or even how to get the cussed things out when they melt because they have been placed too close to the exhaust manifold.

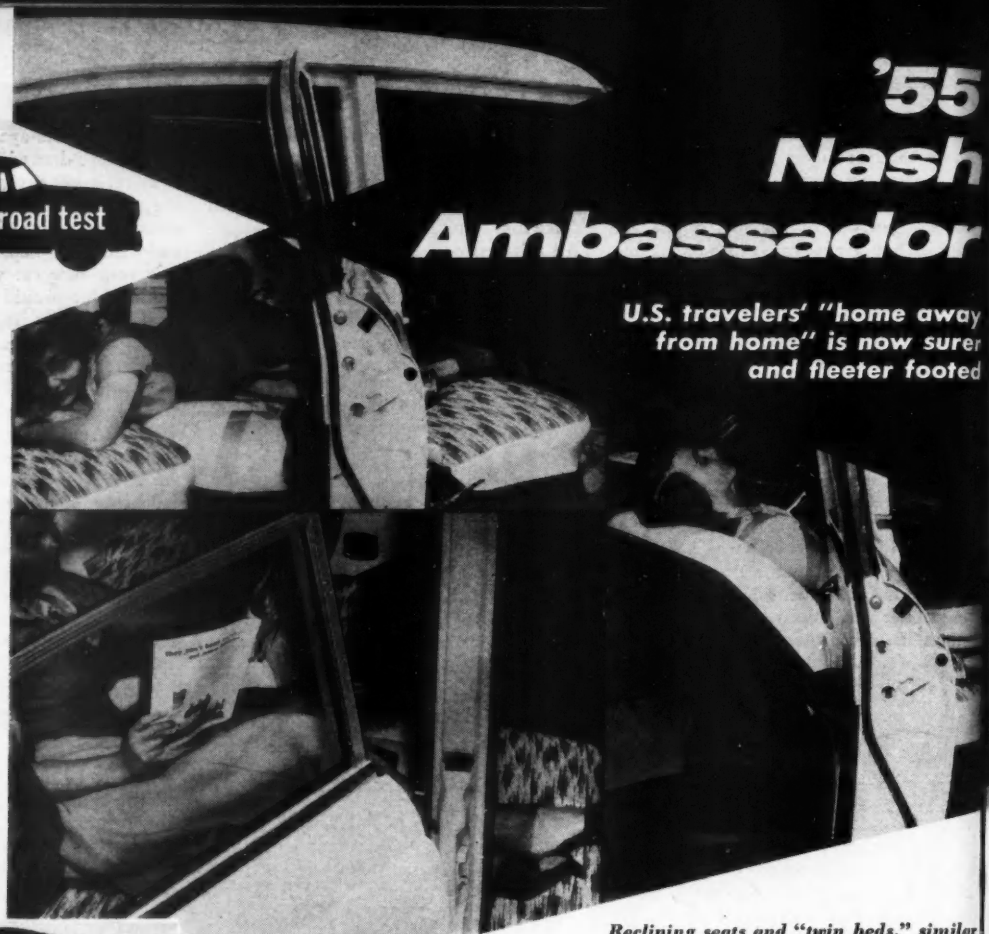
Let the mechanic worry over it? But the mechanic is likely to say "Phooey on this make of car, on this dealership, on this whole community" and go off to Baton Rouge or somewhere. Mechanics, as a rule, are a nomadic race. In the course of years they will make a cycle of every dealership around, some even making a great circle at a faster tempo so as to swing South in the winter and North in the summer and they wind up knowing more about the roads than most of the automobile clubs.

Just remember: The dealer may not love you, but he will love your money even if it is tainted with your self-defense, so demand before you buy, and after. You have only 90 days or a few thousand miles to find all those termites before they start eating thru your hip pocket.

MT RESEARCH road test

'55 Nash Ambassador

U.S. travelers' "home away from home" is now surer and fleeter footed



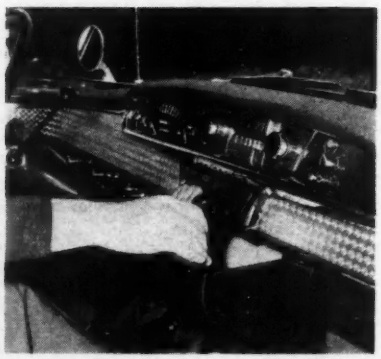
Reclining seats and "twin beds," similar to those in '52-'54 Nashes, are indispensable for changing positions on trips

by Pete Molson

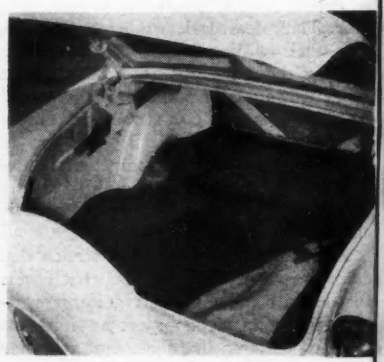
Tie-on mosquito screens for both front doors are about $3; special air mattress with built-in pillow ($12) levels seat

THE CONTENTS of MT's mailbox run in interesting cycles. Some years they favor one make of car, and rake the test staff over the coals for having criticized it too sharply. Sometimes they see eye to eye with us. This has been happening on the subject of the independents since early last year. Briefly, a fairly constant theme has been this: The independents have contributed far more than their share of truly worth-while improvements, particularly when you consider that their research and development budget is only a fraction of that of the big companies. Now that the Big 3 are gobbling up an ever-increasing percentage of sales (latest reports give them a sobering 97.9 per cent of passenger-car registrations), just where are we headed? Have all the mergers been for naught? Is it going to be just "the 3," with

Another convenience (and safety) feature continues: "fishnet" over windshield for maps. Note transparent visors



There's some possibility of jumbled contents in Nash's dash drawer, but everything can't fall out on the car floor



Trunk deserves demerits for poor lining, unhandy loading with continental tire (Customs) or floor tire mount (Supers)

no need to add that superfluous *big?*

With all our heart, we hope not. One of the best reasons for our feeling this way is that our family likes nothing better than to set out with a few maps in the glove compartment and nothing to do till 9 A.M. Monday. If anything, it's even truer when we have a couple of weeks' vacation. And if ever a car was designed more specifically for the nomadic family than one of the big Nashes, we'd like to see it.

Now, this is not exactly news to any Nash-owning family. But 2 things have combined to change the picture for '55. The first is those ominous statistics we quoted, which just might indicate a too-furious rush to buy something the neighbors will all approve of. The other point is that Nash, with sundry improvements, is more of a *car* than ever before.

Photos by Bob D'Olivo

Test car: Top-of-the-line Custom 4-door, with Packard-built V8 and Ultramatic, air conditioning with heater, power brakes and steering, reclining seats and bed, radio, electric windows; in short, everything known to the industry except power seat, which would be complicated by bed.

Engine: Packard V8 of rugged design, keyed to future power increases. Test car's powerplant embodied mid-year change from 7.5 to 1 compression ratio up to 8.25. Design is good example of heavy school (Chevrolet's and Buick's comparative lightweights lead the opposition), has today's universally accepted high horsepower (208), overhead valves, short stroke, some tendency to noisiness under acceleration. Life expectancy excellent.

Other options: V8 comes only with its own Ultramatic, a planned rather than arbitrary decision; there's nothing quite like the transmission designed for an engine. Still available (at noteworthy price differential) is time-tried ohv 6, with 3-speed box, 3-speed plus overdrive, or Hydra-Matic; either of latter transmissions is excellent for Nash's avowed travel purposes. Le Mans engine (140 hp), now standard in Custom 6s, 130-hp version in Super models. Power brake choice up to individual buyer; non-power steering about this year's stiffest, recommended only if you need exercise.

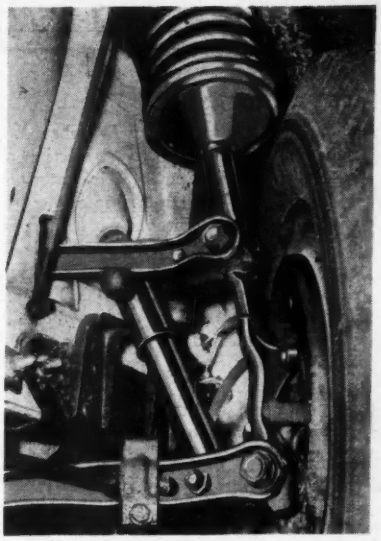
WHAT THE CAR IS LIKE TO DRIVE

Exit and entry: Surprise here, for AM's windshield looks to wrap farther than most; huge doors help make it easy to avoid. Slight stepdown no problem. Door-checks usable on hills, unlike earlier versions. Steering wheel and post also look like problem, are not.

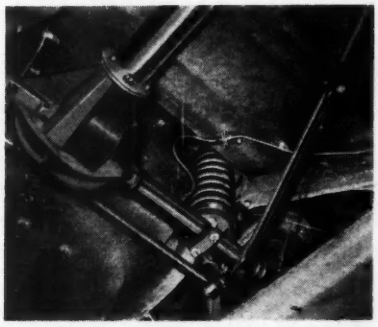
Driving position: Foam-padded, extremely comfortable seat with big fore-and-aft adjustment, possibility of tilting seatback to 1st notch for occasional posture change during long trip (warning: use this with caution; you can really yawn and stretch out in this car, but don't do it inadvertently). High wheel, awkward at 1st acquaintance, then satisfactory; ditto its extra-thick rim. Nash panel still has speedometer, other gauges and warning lights out of driver's line of sight. Central glove drawer, invented by Nash, coming too slowly to other cars; now has a washable interior.

Vision: Other makers should copy pleasing freedom from distortion, both front and rear. Thick post, once nightmare of unit body-frame designers, has vanished. Flattish, slightly sloping hood satisfactory with high front seat. Front, rear fenders visible even to short woman driver. New approach to rear-view mirror problem now urgent: why a broad back window that driver can't use? Non-glare pad now covers broad dash top; no windshield reflections.

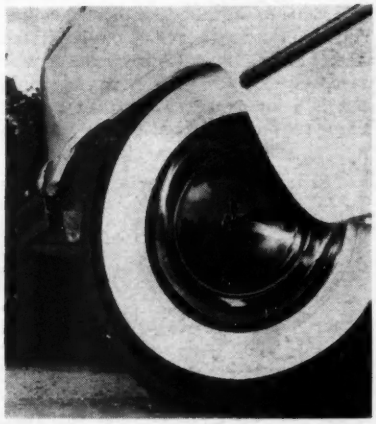
Operation of accessories: Wipers do best they can, need creative redesign to get to sides and center of windshield. Some heat and vent controls centered, others in front of driver. Weather Eye gives great blast of



Familiar to every* Disneyland-*viewing family, Nashes long front coils with integral shocks give softness, stickability

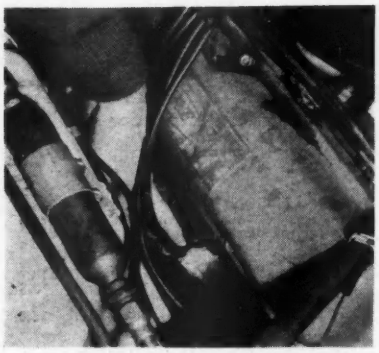


Like Buick, Nash clings to torque tube, coil springs all around. Neither has European 4-wheel independent suspension



Big improvement, stylewise as well as in utility, is wheel cutouts which cut down turning circle by useful foot and a half

Lowered, flattened hood opens easily (tho with odd catch), rises to height that promises easy conditions for engine work



But compartment is so cluttered that owner is likely to confine himself to simple tasks. Sparkplugs are well hidden

CONTINUED

'55 Nash Ambassador V8

continued

heat almost at once after starting. Vent system not up to earlier Weather Eye standards, evidently due to obstruction of air-conditioning equipment. Air conditioner effective and operation simple, tho frequent adjustment desirable with full passenger load (temperature varies more in rear seat). Lowest-priced U.S. unit by far. Air-conditioning test, Aug. '54 MT.

Ease of handling: Don't trust your 1st judgment here. One look at broad expanse of sheet metal may frighten the would-be buyer who doesn't drive demonstrator quite a distance. Excellent steering response on rough spots, ruts, streetcar tracks; crowned roads demand some correction. Handbrake too close to underside of dash, barks any-sized knuckles.

Acceleration: Not for you if you have to lead the pack, more than sufficient for all honorable purposes if you don't. If comparing Nash with Hudson V8 (tested last month) note that tho Hudson was earlier model, with lower compression ratio, it lacked 275 pounds of equipment (air conditioner, custom trim including continental spare). Similarly equipped Hudsons, Nashes shouldn't differ. Conservative drivers will prefer smoother of Ultramatic's 2 DRIVE ranges, which starts car with torque converter only, locking up later to direct mechanical connection. Faster range gives geared start aided by torque converter, then proceeds as in other setup at anywhere from 15 to 55 mph (it depends on how hard you're pushing). The faster range bettered its smooth twin by these times: standing start ¼-mile, 1.9 seconds; 0-30, 1.1 seconds; 0-60, 3.6 seconds; 10-30, 0.8 second; 30-50, 0.1 second, and 50-80, 2.4 seconds. MT can see little value to the calmer of these 2 ranges. You don't have to tromp on it all the time, but it's nice to have the power there, especially when—since a geared start is a lot more efficient than a plain torque converter—it shouldn't up your gas bill significantly unless you abuse the privilege. Quadrant vanishes behind steering post when seat all the way back. Reluctant cold starting of test car easily cured by flooring throttle. Hot starting good.

Braking: Straight-stopping, non-touchy power brakes with excellent feel. Like Hudson's (June MT), brought car to unerringly straight stops. Locked wheels slower than most. Brake pedal can be operated with a not-too-big left foot.

Roadability: Another category where you have to get in there and try it yourself. After watching this car cornering, we felt anything but enthusiastic. From inside, on an 800-mile trip with many curves, it didn't seem that it could be the same car. Will break loose on corners, but new V8 and power steering quickly correct. Unimpeachable behavior at top speed; tireless to drive when cruising at 75-80.

WHAT THE CAR IS LIKE TO LIVE WITH

Riding in the front seat: Room galore in any direction, except in rare circumstance when short person driving and tall one must find legroom under air conditioner. Ride is middling-hard rather than pillowy, gives top long-distance comfort. If you like to cover many miles on vacations, take turns driving and resting in reclining seat. If you don't like to hurry, you'll still appreciate it. Parcel net over windshield, plastic sun visors, etc.

Riding in the rear seat: Plenty of space here, too, even with front-seat passenger reclining (see photo, page 32). Giant armrest in center, big enough for a card game.

Camping: Bed makes up in a few seconds, but trunk (in Custom, continental-equipped models) is hard to load and unload. Air mattresses with built-in pillows, front-window insect screens inexpensive.

ECONOMY AND EASE OF MAINTENANCE

Fuel economy: Noticeably below enviable record of 6-cylinder Ambassador, in both previous road tests and Mobilgas Economy Runs. Requires nursing to keep fuel economy up above average of current high-powered V8s.

Is car well put together? Notably better than early products of same assembly line. No complaints except for uneven fit of panel ash trays, some "orange peel" in exterior paint.

How did it hold up? Very well, with particular lack of obscure body noises (a happy situation which has continued for long periods in previous Nashes, due to welded body-frame.

Servicing: Strictly for the professional. AM drops V8s into its bodies from above (6s pop up from below) and it must be a real precision job. Air conditioning, of course, takes up some room. But mainly it's just a great big engine in a middle-sized compartment, and you'd better confine yourself to checking the oil.

GENERAL SPECIFICATIONS

ENGINE: Ohv V8. Bore 3.81 in. Stroke 3.50 in. Stroke/bore ratio 0.913:1. Compression ratio 8.25 to 1 (earlier engines 7.8:1). Displacement 320 cu. in. Advertised bhp 208 @ 4200 rpm. Bhp per cu. in. 0.65. Piston travel @ max. bhp 2450 ft. per min. Max. bmep 141.4 psi. Max. torque 300 lbs.-ft. @ 2000-2600 rpm.

DRIVE SYSTEM: STANDARD transmission is Ultramatic, 4-element torque converter with planetary gears and direct drive above 15-55 mph, depending on throttle position. RATIOS: Drive, torque converter only and 1.00 (direct drive) or, at separate quadrant position, 1.82 x converter ratio, torque converter only and 1.00. Low, 1.82 x converter ratio. Reverse, 1.63 x converter ratio. Maximum converter ratio at stall 2.9 @ 1650 rpm.

REAR-AXLE RATIO: 3.54.

DIMENSIONS: Wheelbase 121.25 in. Tread 59.5 in. front, 60.5 in. rear. Wheelbase/tread ratio 2.02:1. Overall width 78 in. Overall length 209.25 in. Overall height (empty) 62.25 in. Turning diameter 44 ft. 4 in. Turns lock to lock 4.3 (4 power steering). Test car weight 4250 lbs. Test car weight/bhp ratio 20.4:1. Weight distribution 57% front, 43% rear. Tire size 7.10 x 15 (tubeless).

PRICES: (Including suggested retail price at main factory, federal tax, and delivery and handling charges, but not freight.) SUPER 4-door sedan $2775. CUSTOM 4-door sedan $2965, hardtop $3095. (6-cylinder models $290-$300 less.)

ACCESSORIES: Ultramatic standard, radio $98, heater $77, power steering $140, power brakes $39, power windows $128, air conditioning (with heater) $395.

TEST CAR AT A GLANCE

Nash Ambassador V8

REAR-WHEEL HORSEPOWER
(Determined on Clayton chassis dynamometer. All tests are made under full load, which is similar to climbing a hill at full throttle. Observed hp figures not corrected to standard atmospheric conditions.)

56 road hp @ 1200 rpm and	27 mph
83 road hp @ 2000 rpm and	46 mph
104 road hp @ 2500 rpm and	58 mph
Max. 116 road hp @ 3200 rpm and	77 mph

TOP SPEED
(In miles per hour over surveyed ¼-mile.)

Fastest 1-way run	102.91
Slowest 1-way run	101.35
Average of 4 runs	102.13

ACCELERATION
(In seconds, checked with 5th wheel and electric speedometer.)

Standing start ¼-mile (72 mph)	19.3
0-30 mph	4.5
0-60 mph	13.7
10-30 mph	3.3
30-50 mph	6.7
50-80 mph	15.0

SPEEDOMETER ERROR
(Checked with 5th wheel and electric speedometer.)

Car speedometer read	32 @ true 30 mph
	50 @ true 45 mph
	67 @ true 60 mph
	83 @ true 75 mph
	108 @ true 100 mph

FUEL CONSUMPTION
(In miles per gallon; checked with fuel flowmeter, 5th wheel, and electric speedometer. Mobilgas Special used.)

Steady 30 mph	19.5
Steady 45 mph	17.2
Steady 60 mph	14.3
Steady 75 mph	11.1
Stop-and-go driving over measured course	11.4
Tank average for 841 miles	12.2

STOPPING DISTANCE
(To the nearest foot; checked with electrically actuated detonator.)

30 mph	40
45 mph	75
60 mph	148

What is a CLASSIC?

A STRIKINGLY LONG, sedate automobile was parked at the curb and the usual knot of admirers had gathered 'round. One man in the group seemed particularly taken by it. He stood looking at the car, slowly and involuntarily nodding his head. "There's a real car," he finally said, "one of the great classics." He went on, not talking to anyone in particular, "I could tell you all about classic cars. Some day I'll find one and restore it — a real classic — not all of 'em were, you know. Know what a true classic is ...?" But just about that time a fellow came along and jumped into the car and once the engine had come to life nobody heard anything else. The man watched it till it was out of sight and he was still talking, really just muttering to himself by that time. As we walked away he was saying, "Some day . . . some day."

On the next page you'll see why *this* is his day — and yours.

CONTINUED

The cars on this page may or may not be classics. What is a classic car, anyway? If you have the answer you can . . .

WIN A RESTORABLE CLASSIC

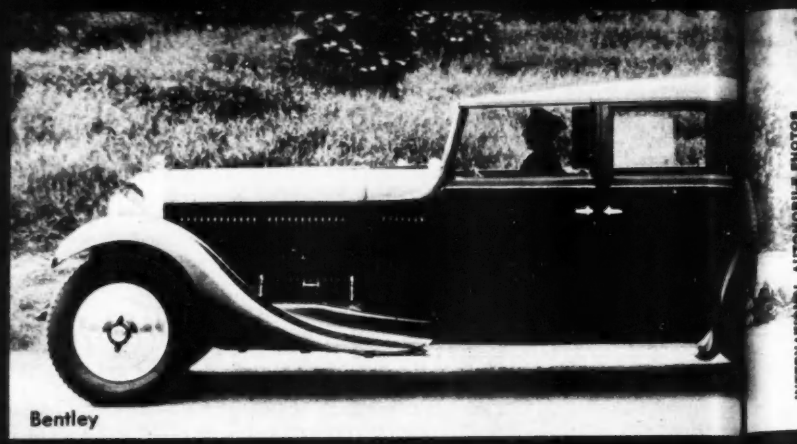
THERE ARE THOUSANDS of classic car enthusiasts like the man on the preceding page. He is a lover of classic cars, he has his own idea of what constitutes a classic, he has an all-time favorite, but he has no classic car of his own. The MOTOR TREND Classic Car Contest is aimed at this man (altho those who presently own classic cars are just as welcome).

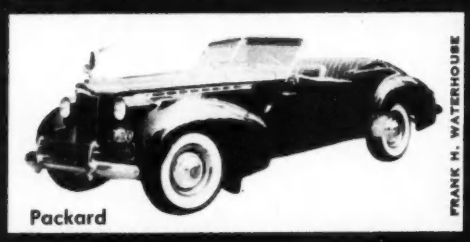
The essence of the contest is this: First write your own definition of a classic car. We know (from numerous letters) that there are varying opinions on this — we want to hear them. Secondly, and with your definition in mind, we want to know what you consider the greatest classic of all time. That's all there is to it.

But here's the best part of all — 1st prize, for the man who gives the best answers, will be a classic car. We're not going to tell you what kind of car it will be, but we can promise this — it will be an unquestionable classic and it will be in restorable condition. (Naturally we wouldn't cheat anyone out of all the fun by giving away a *restored* classic!) The car will be waiting in Los Angeles for the winner and it will be in condition for him to drive home.

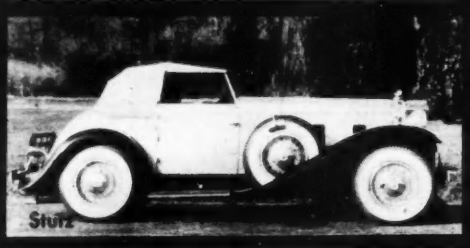
Getting down to business, here's a hint that may help you if you're stumped by the classic car definition. Look up the word *classic* in a dictionary — a good grasp of the word should help. Here, for example, is one provocative example from Webster's *Collegiate*: "... characterized by simple tailored lines, correct for a variety of places and occasions, and basically in fashion year after year." That's a pretty fair steppingstone — there are many others.

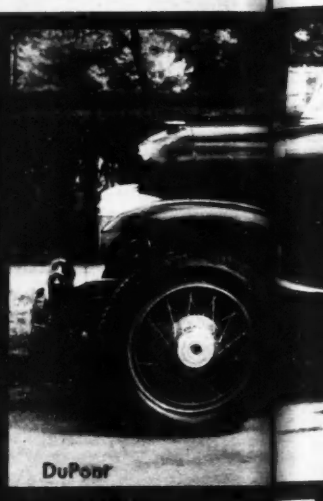
Your selection of the greatest classic car should be a cinch — you probably decided on it long ago. Just remember 2 things: Your choice must reflect your definition of a classic car, and it must be very specific. Just 1932 Lincoln, for example, won't do. List it as a 1932 Lincoln KB phaeton, dual cowl, if that's the model you're referring to, and so forth. But let's get started: here's your chance to talk yourself right into a classic car.

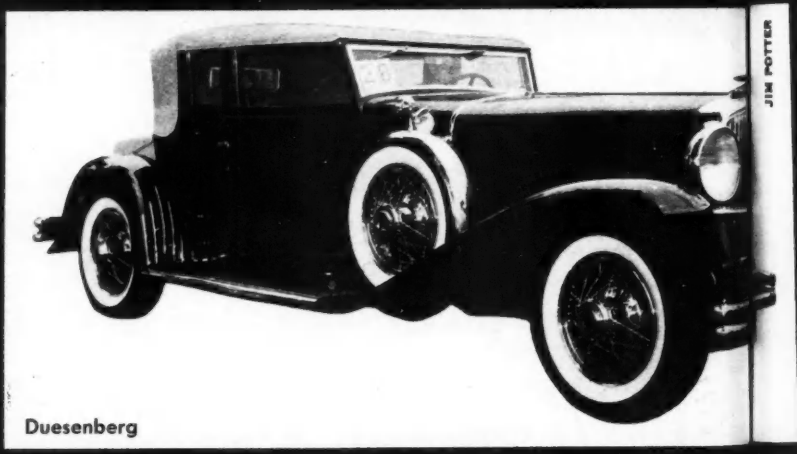

Bentley


Packard

FRANK H. WATERHOUSE


Stutz


DuPont


Duesenberg

JIM POTTER

CONTEST RULES

1. The contest is open to anyone living within the continental limits of the United States (including Alaska and Hawaii) except employees of Trend, Inc., and their families. No entry fee, registration fee, or subscription is required. Contest is subject to all federal and state regulations.

2. Submit answers to the 2 questions outlined above, allowing no more than 200 words for each answer. Typewritten entries are preferable but others will be equally considered. No drawings will be accepted — written answers only.

3. Entries will be judged individually on s ness of reasoning involved and justificatio choices made. Decision of the judges will be f

4. Entries must be postmarked not later than n night, July 31, 1955, in order to be eligible.

5. Entries become the property of Trend, I and we reserve the right to print any entry or part thereof.

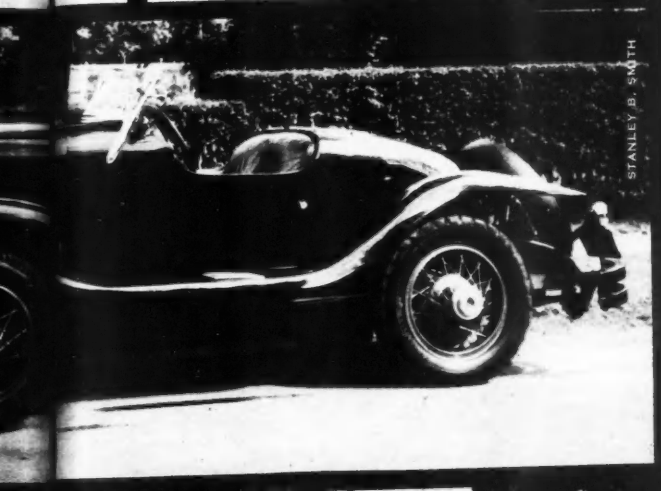
6. The prize will be a restorable classic car. T will be no substitute and should the winner fa claim the car in Los Angeles within 30 da will go to the 2nd-place winner, who will have 30 days to claim the car, and so forth.

INTERNATIONAL AUTOMOBILE PHOTOS

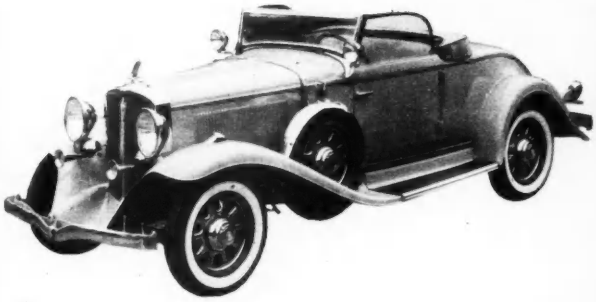
JIM POTTER

Franklin

Pierce-Arrow

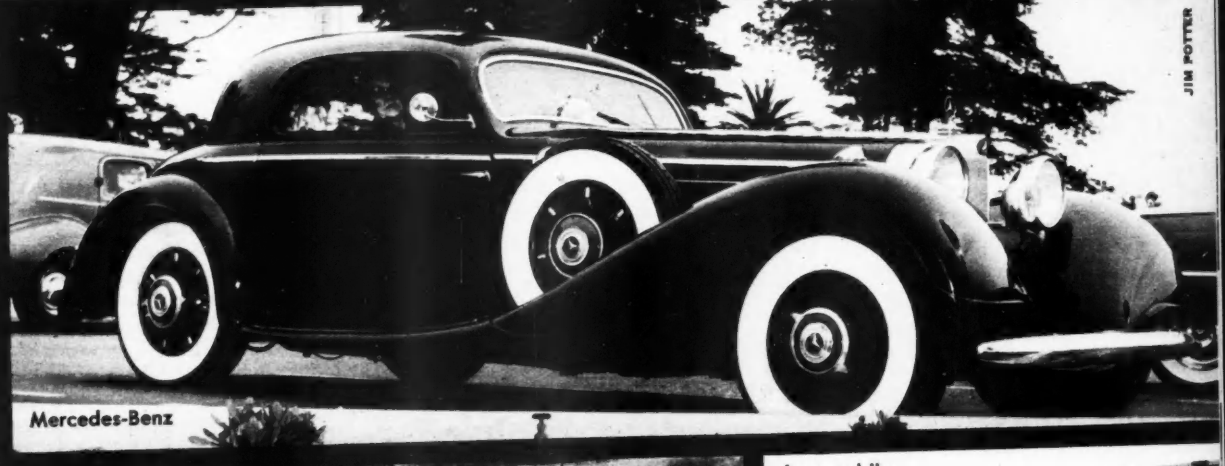


STANLEY B. SMITH



Studebaker

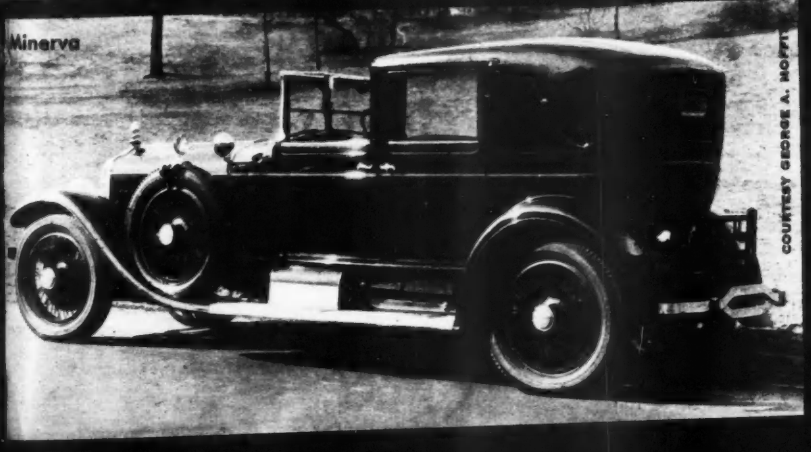
JIM POTTER



JIM POTTER

Mercedes-Benz

Minerva

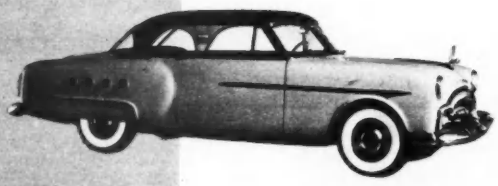


COURTESY GEORGE A. HOFFT

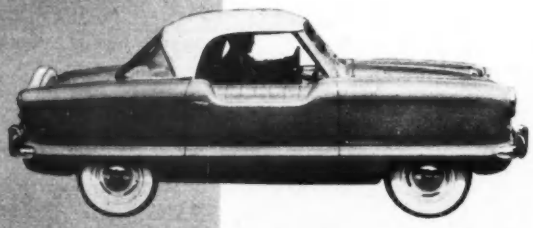
Locomobile

The Brash and the Beautiful

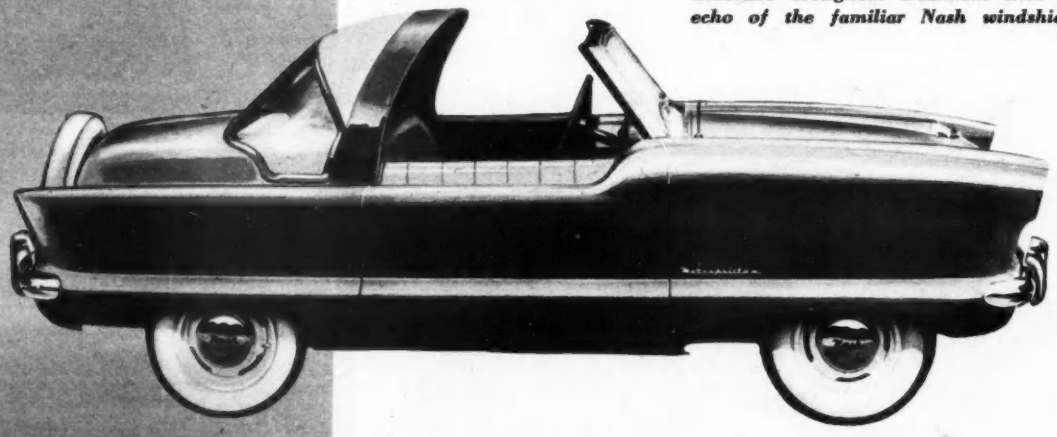
In unpredictable mood, MT's Don Fell runs the customizing gamut from simple dechroming to a forecast of cars to come.



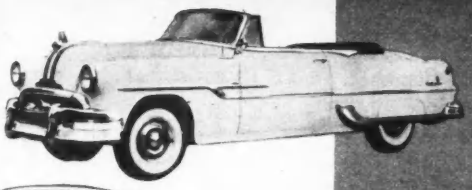
Lured by the old, old problem of how to retain the Packard look and still move toward the future, Don Fell here submits one of his solutions to the problem. No backyard job, this hardtop represents much time and money with its hefty front extension, wrapped windshield and fenders



Even "the newest concept in motoring" tempts customizers, the changes here being of a more modest nature than on the Packard. Front fenders are retained, but with cutaways and frenched lights; ditto the lowered rear fenders. The lengthened window sills add length and make possible the all-new coupe de ville top, combining Eldorado brougham treatment with an echo of the familiar Nash windshield

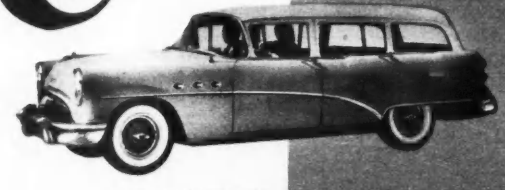


No. 1 candidate for a summer clean-up campaign is the thickly chromed, pre-'55 Pontiac. This custom has felt the torch at well-chosen spots: The whole top of the body has been dropped nearer to the fenderline, while airscoops and wheel cutouts would do considerable even by themselves



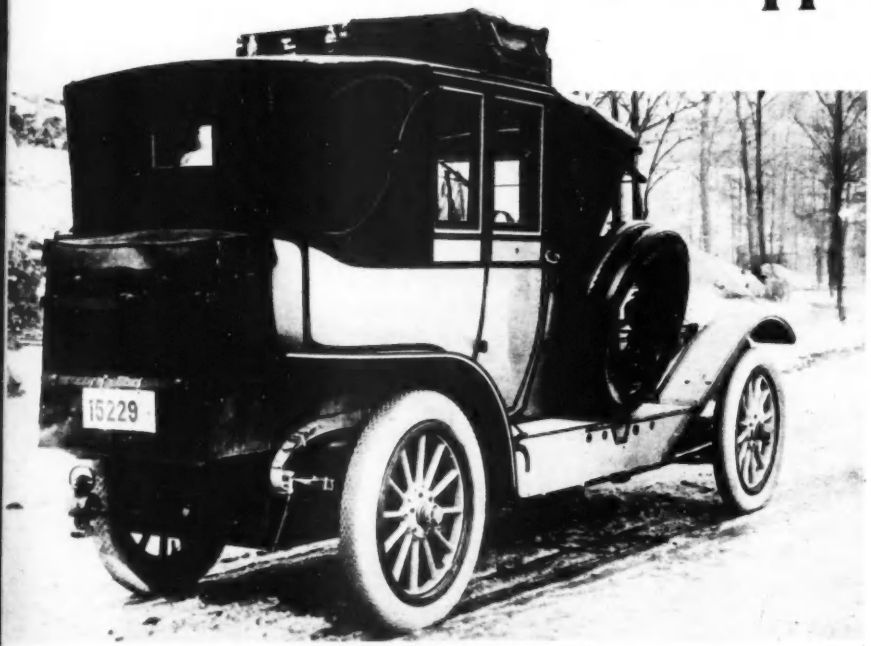
Ever since we saw our first Montclair, we've been itching to get our hands on this "factory custom" and go a little farther with it. The result may look to you like a plain stripped Mercury, but the dropped sill and greater length of the car accent what we hope will be a trend to cleaner design in '56. The disposal of chrome around grille has been uncompromising

The suitcases and air mattresses are packed away under the rear floor, where they can't slide forward; driver and passenger can ride in seclusion, or can roll back their fabric roof; atop everything, for a real look at the vacation countryside from a hardtop's roof, ride from 1 to 6 carefree passengers (they could be your sweet but noisy children, securely locked in). For a cheaper version, try a sedan delivery



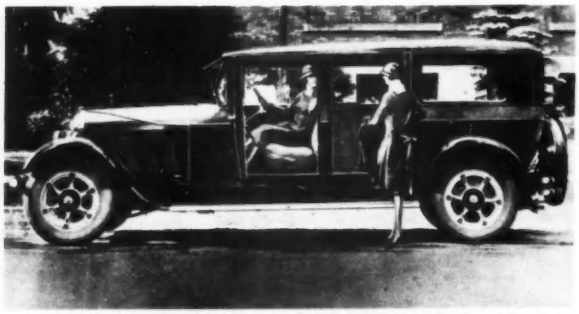
Whatever Happened To . . .

by Don MacDonald

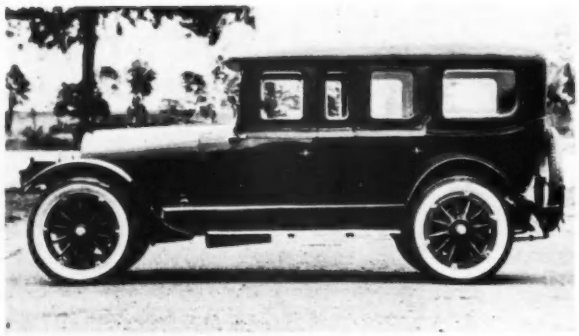


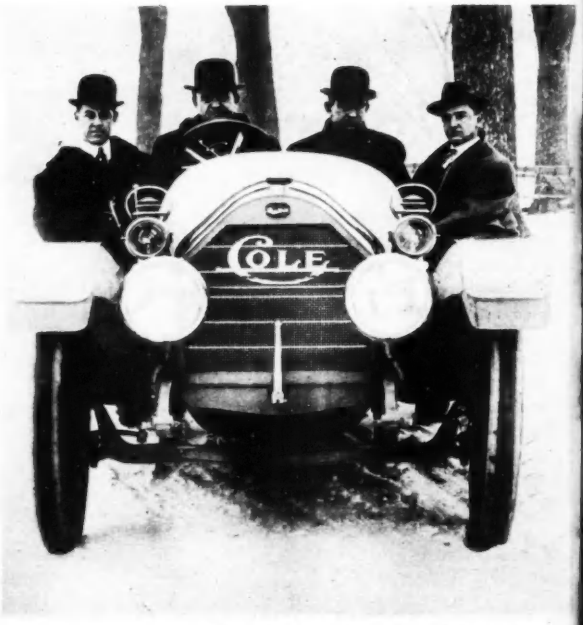
NOSTALGIA can be a disease, except when thumbing through the fascinating photo collection in the Automobile Manufacturers Association's Detroit archives. We weren't looking for dusters, high-wheeled AutoBuggies, or even scenes showing motorists lighting up their acetylene lamps at sundown. Rather, our interest lay in more recent items, such as rumbleseats, radiator muffs, and Boyce MotoMeters — things that have lost their place within most of our memories on the modern, streamlined, and (partially) more utilitarian car. Most all could be revived by some enterprising accessory manufacturer (judging from the current craze for wire wheels and continental spares, they probably will), but the biggest surprise of all was finding out that a couple of much ballyhooed "firsts" of a year or so ago were really not firsts at all — namely the wrap-around windshield and the transparent hardtop.

. . . **the Compleat Tourer?** In 1910 Pierce-Arrow made a car specifically designed for touring Europe. You will have to take our word for it, but this one carried along all the conveniences of home, including running water in the toilet. Nowadays Europe has been modernized to provide more conveniences for travelers.



. . . **artillery wheels?** Guess why? Without doubt this elongated Auburn limousine is one of the ugliest individual cars ever built, wheels and all.



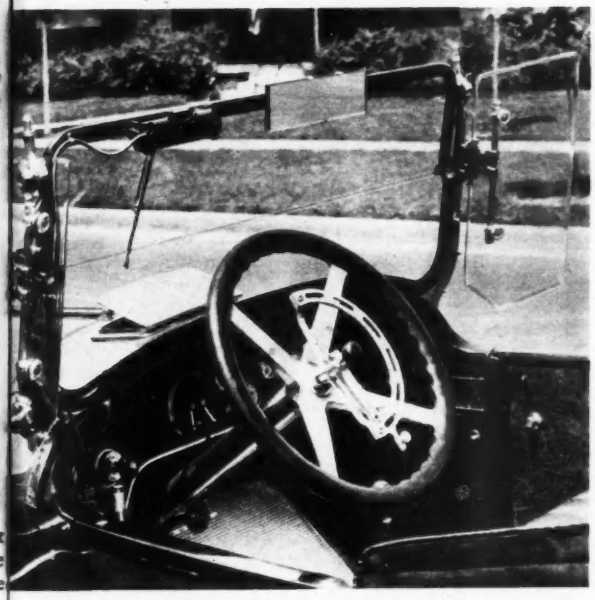


. . . **outrigger seats?** Four in front is against the law in most states now, and in any event we wouldn't insure either these gentlemen or their hats in this position. The 2 on the left are Bob Burman and Barney Oldfield, the car a 1912 Cole.

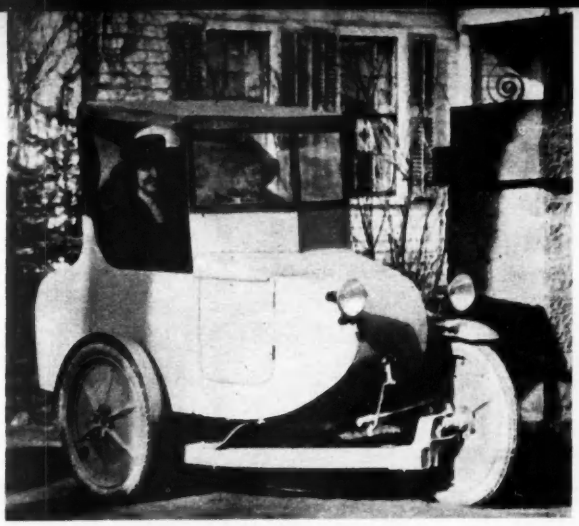
. . . **the California top?** This 1921 Stephens displays a prime example of the removable hard top, an idea which is still with us, as witness the Ford Thunderbird, Muntz Jet, and a spate of plastic roofs for Corvettes, Austin-Healeys, and the like.

A survey of vanished wonders, once firm in their position on the automotive scene.

. . . **detachable hoods?** This sometimes still happens, but not intentionally as on this Buick.



. . . **the complete cockpit?** Controlling this 1923 Stutz was a full-time job, to say the least. The hand spark, advance throttle, and primer have all fallen victim to the ever-increasing atrophy of the modern motorist.

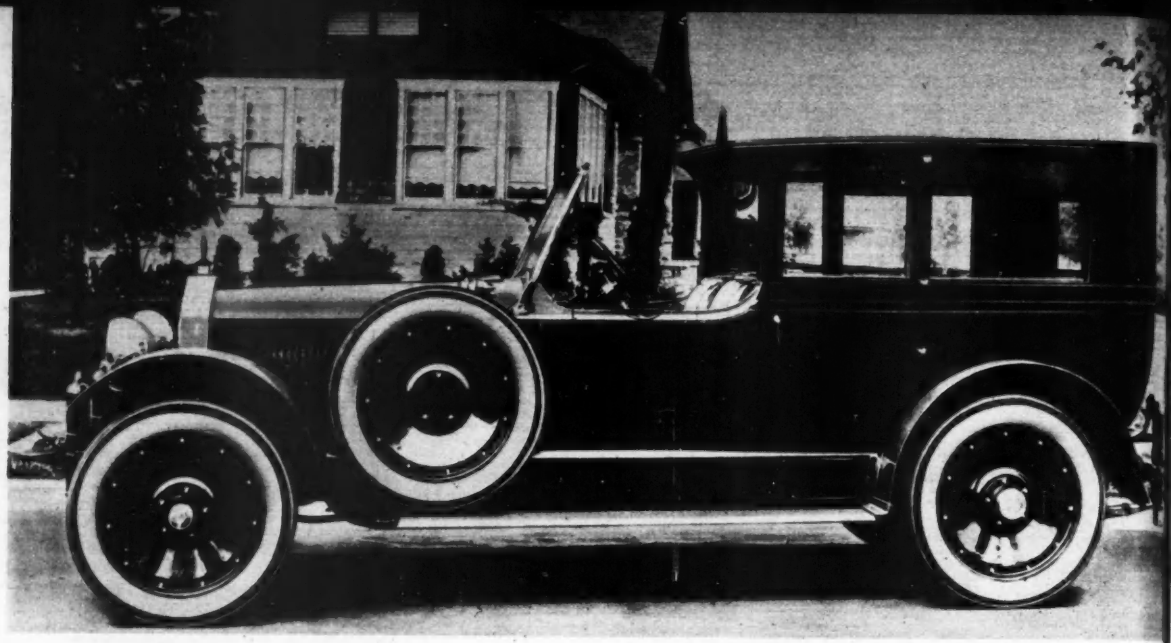


. . . **the cycle car?** This Martin Scootamobile was one of many which preceded the last one, the Crosley. Modern Americans prefer to scoot surrounded by lots of iron.

. . . **fitted luggage?** Not a bad idea even now, but unfortunately luggage is usually square-cornered and square corners don't fit into modern cars as well as into this Locomobile.

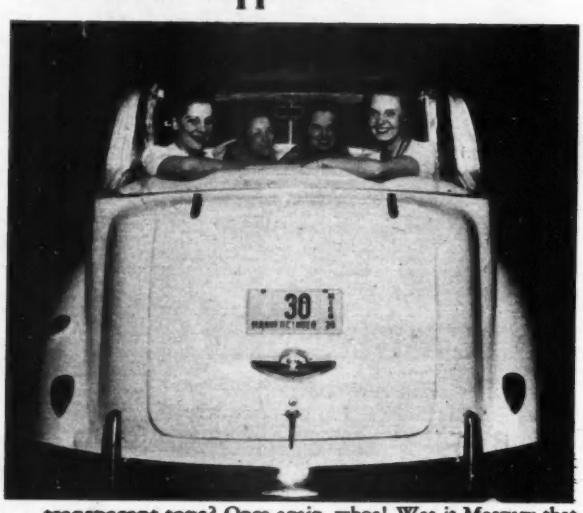
. . . **the Stout Scarab?** Bill Stout never got very far with this living room on wheels, but there is no reason why this idea can't be revived.

CONTINUED



Whatever Happened To . . . ?

. . . outside shocks? People shudder at the sight of machine nowadays, but it wasn't true in 1921 when this behemoth o MacFarland was built.



. . . transparent tops? Once again, whoa! Was it Mercury that claimed this as a first in '54? The license plate on this Plymouth clearly reads 1939. The car was an ordinary convertible sedan, but the top wasn't stock.

. . . chain drive? This is no truck — it is an elderly Simpl sports car which remained faithful to the chain gang until t company folded. One English company, Frazer-Nash, continu the idea up until the start of World War II.

. . . police and gangsters in big touring cars? Nowadays, neither of these can afford more than a black Ford Tudor, much l a big, angular Hupp 8 like this one posed — naturally — outside a Chicago bank.

Classic Comments

by Robert J. Gottlieb

A UNIQUE SWAP MEET held recently by our Classic Car Club of Southern California is something you may want to duplicate. The members brought various and sundry items of interest to classic enthusiasts. These were sold, traded, auctioned, and in a few instances, given away. The spirit of camaraderie ran high as the members talked shop, made their respective needs known and sloughed off extras. You can arrange a meet similar to this one in any locality with a minimum of effort. Choose a site where there is shade for the humans—and, of course, for the cars! Have the women make picnic lunches and—by all means—bring the kiddies. Friendship (or is it commiseration?) between the womenfolk is a great aid in fostering the hobby. Choose one member to act as an auctioneer but do not hold the auction until the members have had an hour or 2 to sell and swap items. Avoid any possibility of dissension by letting the owner of any part or automobile have the privilege of making the 1st bid, which is, of course, the minimum amount he wants to take. Try it sometime; it's lots of fun.

"I have a 1929 Buick Sedan, Model 47," writes Felix Karam, of West Orange, N.J. "Could it be considered a classic? What is the demand for this car?" This Buick is a special-interest car and is non-classic. It would be in demand only by those interested in a 1929 Buick sedan. I wish I could be more encouraging, but demand is slight . . . Many classic enthusiasts living abroad have difficulty sending money out, or obtaining magazines printed in this country. How about some of you enthusiasts helping D. R. Schafer of 6 Chaucer Road, Claremont, Capetown, South Africa? He owns a well-restored 1931 Sunbeam (the pictures he mailed will not reproduce, but the car appears to be in beautiful shape). He likes both classic- and antique-car magazines . . . G. Willard Blauvelt, of Herkimer, N.H., says that his friends in the Mohawk Valley are considering forming a car club to include all types of cars. He, and any others planning so pleasant a project, will want to know 2 addresses in particular. If your main interest is directed to automobiles of 1915 or older, contact the Horseless Carriage Club (215 North Larchmont Boulevard, Los Angeles) or one of the automobile clubs on the East Coast. If your main interest concerns automobiles manufactured since 1920, write to the Classic Car Club of America (c/o Arthur Perrow, 320 West 104th Street, New York).

Two problems with Cadillac phaetons rear their heads: "I would like some information on a 1930 Cadillac sport phaeton: Is this car a classic? Would it be expensive to restore? What would its value be unrestored?" is the query of Raymond Wheeler, Erie, Pa. Fear not, Mr. Wheeler, the car is definitely a classic. There is no way to estimate what it would cost to restore because you do not state what the car needs. If a classic is too far gone, it may have no value except for parts notwithstanding that it is a classic. Wesley J. DeYoung, of New Sharon, Iowa, has a 1935 phaeton which is minus a radiator grille, shield, one wheel, hood ornament, and 3 hubcaps. "Is this car a good classic and does it sound like it is worth restoring?" The majority of enthusiasts consider this automobile a classic. However, I would not commence restoration if I were Mr. DeYoung until I had first obtained a spare-parts car. It is surprising how many enthusiasts spend hundreds of dollars in restoring a car and then cannot complete it because a major component is lacking . . . Clyde E. Weniger, Littleton, Ohio, has a chance to buy a 1928 6-cylinder Studebaker. "It is a 4-door sedan," he writes, "and I can get it for $25. Shall I buy?" Of course, the 6-cylinder Studebaker is not a classic, but any car in running or restorable condition which is of interest to the prospective purchaser is worth $25 . . .

And now, here we go with an eternal question. This is from John Seal, of Santa Barbara, Calif.: "I have just been reading over the letters sent in by Mr. Read and Mr. Malks in the May MOTOR TREND and I must say that I heartily agree with them. I don't see how convertiblism [!] necessarily makes a car more classic than a hardtop unless it's for the same reason that convertibles today are *supposed* to be more desirable than ordinary cars . . . Last year I owned a 1933 Packard coupe with an undetachable leather top (unfortunately, I sold it). As far as I was concerned this car was every bit as classic as some of the more sporty canvas-topped jobs I have seen. This was especially apparent during the rainy season—for I have yet to see a convertible that is comfortable in wet *or* hot weather. Actually, it seems to me that a convertible then as now is actually somewhat restricted in its use, which does not comply with the assorted definitions of classicism. Having lived back East, I can well appreciate Mr. Read's comments on eastern cold and sidecurtains; they are applicable also to California rain.

"At the recent classic-car meet at the Biltmore Hotel in Santa Barbara, a majority of the cars were sedans and various other hardtops. I know it isn't cricket to rub it in, Bob, but didn't I see you arrive in the Bohman & Schwartz *un*-convertible sedan?

"The classics were the best-built, best-looking, most powerful (and expensive) cars of their time. Does it really make so much difference if one has a soft top or not? I get just as much thrill out of seeing one of the big sedans of that era (especially if it is a Packard!) as I do a racy speedster, touring car, or just plain coupe for that matter.

"A car is a strictly personal thing. Therefore, if a man chooses to drive around in a 20-year-old wonder with a V-12 mill, sidemounts, *functional* grille, non-wrap-around windshield, etc., etc., be it sedan, hardtop, soft-top, roadster, speedster, or what have you, he is to be commended for having the

initiative to follow his own interests and for realizing that years do not influence a thing of beauty . . ."

Thank you very much for your opinion, Mr. Seal. I still maintain that a convertible is a more desirable car from a classic standpoint, but we are all entitled to our opinions and my opinion is not entitled to any more weight than yours. I am happy that you did not interpret my statement to mean that a car *had* to be convertible to be a classic. A few readers did misinterpret it in this manner. As a matter of fact, I did not attend the meet in an *un*-convertible Bohman & Schwartz. I was in a *convertible* Lincoln!

To those who think participation in the classic-car hobby is expensive, take note of the following letter from Edward R. Robinson of Delaware, Ohio:

"It seems to be the consensus of automotive editors in general that participation in the ranks of classic-car enthusiasts is such an expensive proposition that the average person should be extremely wary. My experiences have lead me to a different conclusion that I think your readers might find of interest. I am a college professor, which automatically defines my financial status among the have-nots. I have never been employed as a professional mechanic or body man, yet I have managed to own and enjoy a number of really fine autos. The following breakdown of prices and expenses should give you an idea:

Car	*Price*	*Expense*	*Sale*
1937 Cord convertible	$250	$ 12	$300
1935 Packard Super 8 convertible	125	148	500
1935 Packard 12	200	1	450
1934 Packard Super 8 convertible	200	38	335
1940 LaSalle coupe	400	80	450
1935 Chrysler Airflow	35	none	50

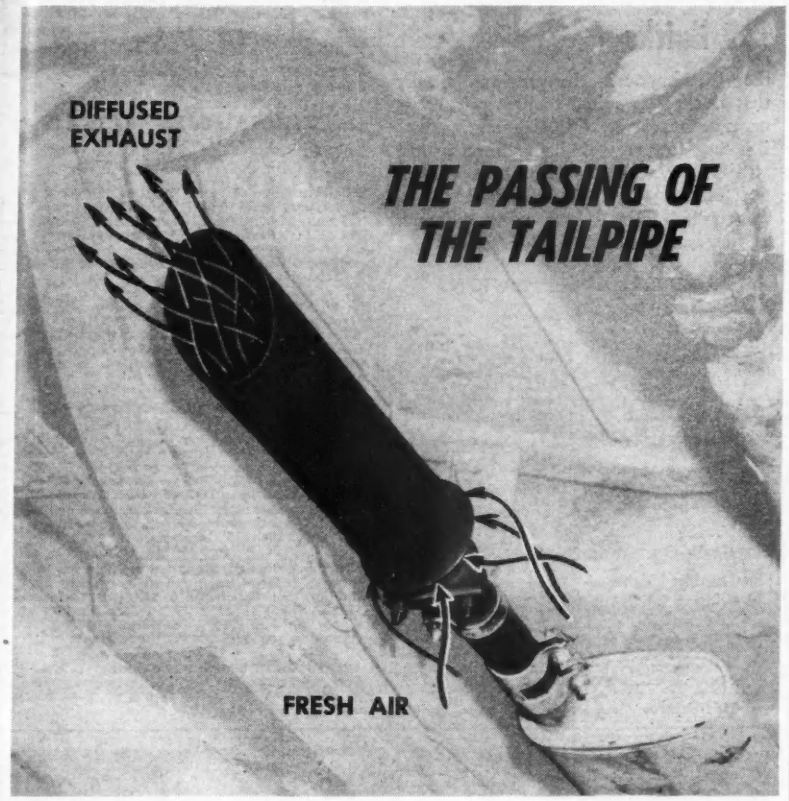
"I have had much the same experience with several old and special-interest cars, among them a 1922 Chevrolet, 1924 Buick, 1915 Monroe, 1931-33-35 American Austins, etc. At the present time I have located a 1930 Cadillac 16 for $300, a 1932 Duesenberg for $1500, and a 1936 Ford roadster for $150. I have located but not priced a 1913 Excelsior motorcycle, a 1928 Chrysler roadster, and a 1931 Studebaker President convertible." *There* goes a happy man!

John Rimicci, of Chicago, has a Model A Ford convertible coupe with rumbleseat. He paid $300 for it, and wants to know whether that was too much. By no stretch of the imagination can a Model A be considered a classic . . . and the Model A convertible coupe is not a rarity. Thousands of convertible coupes were built (and they all drive in front of me when I am on Wilshire Boulevard!). The Model A is a special-interest car and is firmly endeared in the hearts of many Americans. Many Model A owners' clubs have come into existence in the past year because the marque is so well respected. If Mr. Rimicci's car needs restoration, he paid too much for it. If it is completely restored or in good original condition, he made a good buy. He also stated in his letter that the car was equipped with 6.00 x 16 tires. These were not original equipment and would not fit the original wheels. To increase the value of the vehicle, original wheels and tires should be installed.

"Please settle an argument," writes H. Worthington, Seattle, Wash. I maintain that I saw a 1940 Buick sedan with the front tonneau open and the rest of the car stock. My buddies say I dreamed it. Did Buick build such an automobile?" I was completely stumped by this question until I received a letter from Phil Campbell of Saline, Mich., in which he enclosed, by coincidence, an ad from a 1940 publication. It pictures a 1940 Buick with a body by Brunn mounted on the Roadmaster chassis. The car listed for $3895 delivered at Flint; quoting from the ad, "Standard equipment includes removable top for the chauffeur's compartment, speaking phone, center armrest in the 3-passenger rear seat, sliding window behind the driver and built-in heater." The standard 141-horsepower straight 8 engine was used.


WALT WORON

A classic car swap meet can be fun. Here Tiny Stowe (center), president of Classic Car Club of Southern California, auctions an item one enthusiast no longer needs



Even when car is idling, sufficient fresh air gets sucked in at venturi to blow out the flame of a match. Exhaust gases and fresh air mix to form harmless diffusion

It should soon be sent to its grave by a device so simple that many inventors will blush for not having thought of it first.

by Don MacDonald

THIS MAY BE the beginning of the end for that rusty old pipe (or 2) now sticking out from the tail of most every U.S. car. Some will dread its passing, such as Cadillac (who will have to close up the prestige-building holes in the rear bumper) and the nation's accessory addicts, who delight in chrome-plated exhaust extensions. Most people, however, will agree that the tailpipe was never more than a necessary evil.

Called a "Diffuser," this snorkel-like device sucks in fresh air by venturi action to mix with the exhaust gases as they leave the muffler. The resulting concentration is so diluted as to be harmless to passengers in the diffuser-equipped car, and, equally important, the heating system of the car behind you in traffic doesn't pick up the usual noxious mixture for distribution to its passengers.

We know the device works because we have a set on one of our own cars. Even at idle, the venturi action will suck out the flame of a match held at the air inlet. Normally, we would check the passenger compartment for carbon monoxide content after prolonged idle with windows closed, but nationwide safety endorsement of the diffuser by the various state authorities (including those states, like Pennsylvania, which have a stiff semi-annual inspection) makes tests of this nature superfluous on our part. Naturally, such endorsement was a necessary preliminary to marketing.

Increase in performance is problematic, and could only be measured at high engine speeds. Even then, it would probably be difficult to sort out normal testing error from actual results. It certainly stands to reason that the diffuser would cause less back pressure than a long, snaky tailpipe, and that both performance and economy would go up a little.

Most of the bonus from the new device, manufactured by the Monroe Auto Equipment Co. (Monroe, Mich.), will go to the dealers who sell it. No longer will they have to stock bulky assortments of tailpipes, because the diffuser with a short adaptor pipe will fit any car, new or old. The customer will get his bonus from the much longer life to be expected from the unit. Tailpipes rot out mostly because of trapped moisture, and there isn't much chance for this. Also, it is impossible to snag the installation on a steep driveway.

Price will be about $5 each, plus a moderate charge for the adaptor, plus labor.

continued from page 27

'55 Buicks

the Roadmaster? In saying simply that this car is suited to that price class or type of driver, this size family, etc., it's easy to overlook one thing: people still buy Buicks because they're Buicks. Soft riding, stylish, big inside and out, this typifies Buick—and the Roadmaster is the epitome of the Buick lineup.

GENERAL SPECIFICATIONS

Roadmaster

ENGINE: Ohv V8. Bore 4.00 in. Stroke 3.20 in. Stroke/bore ratio 0.80:1. Compression ratio 9.0:1. Displacement 322 cu. in. Advertised bhp 236 @ 4600 rpm. Bhp per cu. in. 0.73. Piston travel @ max. bhp 2453 ft. per min. Max. bmep 154.5 psi. Max. torque 330 lbs.-ft. @ 3000 rpm.

DRIVE SYSTEM: STANDARD transmission is Variable Pitch Dynaflow, 4-element torque converter with planetary gears. RATIOS: Drive 1.00 x converter ratio, Low 1.82 x converter ratio, reverse 1.82 x converter ratio. Maximum converter ratio at stall 2.1 (low stator angle) and 2.5 (high stator angle).

REAR-AXLE RATIO: Dynaflow 3.4.

DIMENSIONS: Wheelbase 127 in. Tread 59 in. front, 62 in. rear. Wheelbase/tread ratio 2.10:1. Overall width 80.0 in. Overall length 215.9 in. Overall height (empty) 64.4 in. Turning diameter 45.5 ft. Turns lock to lock 5.0 (4.5 with power steering). Test car weight 4590 lbs. Test car weight/bhp ratio 19.4:1. Weight distribution 53.6% front, 46.4% rear. Tire size 8.00 x 15 (tubeless).

PRICES: (Including suggested retail price at main factory, federal tax, and delivery and handling charges, but not freight.) ROADMASTER 4-door sedan $3349, 2-door hardtop $3453, convertible $3552.

ACCESSORIES: Same as Special; Dynaflow, power steering standard.

GENERAL SPECIFICATIONS

Special

ENGINE: Ohv V8. Bore 3.63 in. Stroke 3.20 in. Stroke/bore ratio 0.88:1. Compression ratio 8.4:1 (7.5 to 1 with standard transmission). Displacement 264 cu. in. Advertised bhp 188 @ 4800 rpm. Bhp per cu. in. 0.71. Piston travel @ max. bhp 2560 ft. per min. Max. bmep 146.2 psi. Max. torque 256 lbs.-ft. @ 2400 rpm.

DRIVE SYSTEM: STANDARD transmission is 3-speed synchromesh using helical gears. RATIOS: 1st 2.67, 2nd 1.66, 3rd 1.00, reverse 3.02. AUTOMATIC transmission is Variable Pitch Dynaflow; see Roadmaster specifications. OVERDRIVE transmission not available.

REAR-AXLE RATIOS: Standard 3.9; Dynaflow 3.6.

DIMENSIONS: Wheelbase 122 in. Tread 59 in. front and rear. Wheelbase/tread ratio 2.07:1. Overall width 76.0 in. Overall length 206.6 in. Overall height (empty) 62.0 in. Turning diameter 44.0 ft. Turns lock to lock 5.0 (4.5 with power steering). Test car weight 4210 lbs. Test car weight/bhp ratio 22.4:1. Weight distribution 54.5% front, 45.5% rear. Tire size 7.10 x 15 (tubeless).

PRICES: (Including suggested retail price at main factory, federal tax, and delivery and handling charges, but not freight.) SPECIAL 2-door sedan $2233, 4-door sedan $2291, 2-door hardtop $2332, 4-door hardtop $2409, convertible $2590, 4-door station wagon $2974.

ACCESSORIES: Dynaflow $193, radios $93, $114, $122, and $144, heater $82, power steering $108, power brakes $39, power seat $70, power windows $97, air conditioning $591.

Sisters Behind the Grille

THE DAWN WILL NO LONGER come up like thunder out of Rolls-Royce, Ltd., 'crost the bay, but every Cloud will have a silver lining. That's one way to describe the new Rolls-Royce and Bentley models—old songs with new words. But, to say the least, the words are still catchy and the tempos have been stepped up considerably.

The new Rolls-Royce Silver Cloud will replace the Silver Dawn and an identical model (except for grille) will be known as the Bentley S and will replace the B-7. The external styling may still look rather staid by American standards but is certainly a step away from the boxy Rolls tradition.

An undisclosed amount of power comes from a 6-cylinder, 298-cubic-inch (4.9-liter) engine with a 3¼-inch bore and 4½-inch stroke. It uses pushrod-operated overhead inlet valves, side exhaust valves, and 2 new bottom-feed SU carburetors. Transmission is Rolls-Royce automatic with fluid coupling.

Altho the car is easily capable of speeds over 100 mph (passengers can talk at that speed without raising their voices), roadability and ride are still the big features. Independent front suspension utilizes wishbones with helical springs and hydraulic shock absorbers. Semi-elliptic rear suspension still has adjustable shocks but they are now electrically operated from a steering column switch which reads "soft" and "hard." Reports say the servo-assisted brakes are among the best.

What is assumed to be the British answer to power seats is described by *The Motor* in this way: "The Rolls-Royce-designed bench-type front seat has a fore-and-aft adjustment on ball bearings and also adjustment for rake which, by employing a dog-leg section at each side of the seat, moves the squab farther back in relation to the seat as its rake is increased."

Among other new Rolls-Royce-Bentley innovations are the key starter and the use of 2 keys; one for the doors and ignition, the other (to translate very freely) for the glove box and trunk.

17 pt. Self-Cleaning Plug Alone Shows 8 hp Gain and 7 mph Greater Speed!

HOW 17 PT. FIRING WORKS

Note electrodes closely. A circular arcing area (four concave segments). Gap being the same from all points. Electricity has property of arcing from coldest point. Current also arcs more readily from apex of two planes than from the face of a flat, metallic surface.

Note that there are 16 apexes (where two planes meet) — all the same distance from the center electrode. Normal heat and spark erosion are spread around the entire 360 degrees and around the whole circumference of the center electrode.

FULL ROTATING SPARK

allows overall cooler electrode temperature for greatly increased life. Hotter spark prevents fouling, yet the rotating and cooling effects minimize the common faults of burning, erosion, blistering and insulator failure. Compare this principle with the conventional 2-point spark plug design.

● **PLATONIUM-NICKEL ALLOY ELECTRODES**— *Metallurgists' first major step beyond platinum aircraft plug electrodes. Arcing points of this material have continued to function after the equivalent of 120,000 car-miles.*

● **SPECIAL SINTERED CORUNDUM INSULATOR**— *Made of gem-like mineral which conducts heat 20 times better than ordinary porcelain. Special shape is designed to vaporize and exhaust wet carbon and oil.*

● **INDIVIDUAL INSPECTION**— *Each LIFE-TIME Spark Plug is tested for firing in oil and for resistance to 30,000 volts/CM .*

● **PERMANENT GAP** — *After months of use LIFE-TIME Spark Plugs mike at exact factory pre-gap.*

● **SELF CLEANING FOR LIFE**— *Confined gases exploding in chamber formed by multiple electrodes reclean arcing surfaces with each firing stroke.*

NOW... ORDER REGISTERED SET FOR YOUR CAR AT POPULAR PRICE!

Dealers and Distributors: *The LIFE-TIME Spark Plug is now in full production. Write for full details. Distributors: Please inquire as to status of your territory.*

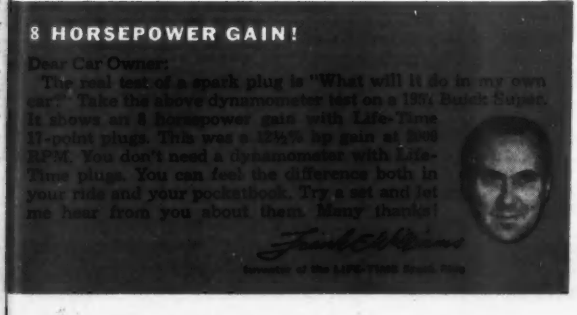
50,000 CAR MILES!

Before LIFE-TIME development, *the spark plug was the most often replaced part of your car.* Engineers agreed that "creeping paralysis," gradual electrode disintegration, carbon buildup, widening gap, could waste one gallon in ten. The LIFE-TIME Plug has now gone far beyond the life of the average set of tires, the average battery. This plug still fired clean, hot and steady at *50,000 car miles!*

Most spectacular spark plug research breakthrough in 50 years allows us to include this unique and unprecedented warranty with every set of LIFE-TIME Spark Plugs. WE GUARANTEE GREATER GAS MILEAGE — GREATER ACCELERATION — A MAJOR POWER INCREASE — OR YOUR MONEY BACK.

YOU RECEIVE BY MAIL

this registered set of LIFE-TIME Spark Plugs in proper series (heat range and gap) for the car you indicate in coupon. NOW AVAILABLE FOR AMERICAN & EUROPEAN PASSENGER CARS, TRUCKS, BOATS, FARM EQUIPMENT, INDUSTRIAL ENGINES.



LIFE-TIME Spark Plug Division,
CONTINENTAL MANUFACTURING CORP.
Washington Blvd. at Meter Ave.
Culver City 60, California

Gentlemen: Please mail postpaid.....set(s) (registered) of LIFE-TIME Spark Plugs in proper heat range and gap for my car at introductory price of 98c per plug (Set of six, $5.88, Set of eight, $7.84). (Or send $1 per set, balance C.O.D.)

Make of my car is.....Year.....

Model.....No. Cyl.....

I enclose $.....(check, cash or money order)

Name.....

Address.....

City.....Zone.....State.....

Two Pages of Order-By-Mail Bargains from J.C. WHITNEY & CO.

Save UP TO 50%

Porous Bronze OIL FILTER ELEMENT with LIFETIME GUARANTEE with Built-in Magnesium Acid Neutralizer

Porous bronze Element never wears out or needs replacement. Lasts for a lifetime of the car. Element removes all harmful particles yet retains your expensive additives. Lets you drive up to 10,000 miles without changing oil. Fits all cars except those with Full Flow Oil System listed below. State year, make, model of car.
No. 116—Regular $6.95.
Element only, POSTPAID $4.95

POROUS BRONZE FILTER ELEMENT FOR FULL FLOW OIL SYSTEM — Fits V8 Buick, Olds., DeSoto 52-55; Ford, Merc. 54-55; Chrys. 51-55; Dodge 53-55; Plym. 1955; Ford V 52-55; Lincoln 52-54; Chrys. exc. V8 46-54. State car, year and model.
No. 117—Regularly $12.95.
POSTPAID, only $8.95

HI-SPEED ELECTRIC SIREN

Developed especially for the U. S. Navy & Coast Guard. Now used by hundreds of Fire & police departments, buses, ambulances, etc. Complete with bracket, screws, 10 ft. of cable & push button. Green enamel.

No. 71—POSTPAID
6 VOLT or $13.24
No. 91—POSTPAID
12 VOLT or $13.70

AH-OOO-GAH Chromed HORN

Here it is for the sport car enthusiast! Not a vibrator or other substitute but a genuine motor driven horn.

No. 60—POSTPAID
State—6 VOLTS, 12 VOLTS $12.60

CHECKERED FLAG EMBLEM

CHROME PLATED

Die Cast Triple Chrome Plated! No Holes to Drill. Just remove backing and apply on Auto Hoods, Fenders, Trunks, Doors, Etc. 4" Wide, 1¾" High. Black and Chrome.
No. 57—POSTPAID —Each ..... 98¢

BULL NOSE ORNAMENT

For Customizing the Ford 47-55, Chev. 47-55, Mercury 49-51 and Plym. 47-55.
CHROME PLATED

Replaces factory hood ornament. Blends perfectly into molding.
No. 47—POSTPAID each only $1.95

Convert Black Tires to White Side Walls—with Genuine 100% White Latex Rubber

White Side-Wall Discs
HOT A PAINT!

An exclusive Permanent Adhesive Process. Can Be Put On in minute by anyone.
Fits all 15" and 16" Tires

For a few dollars, black tires can now be glamorized with White Wall discs. Kit comes complete with cement, roller and all other necessary accessories for Simple and Easy Installation. Once on the tire it will not peel off.
No. 106—POSTPAID, Kit $9.95

NEWEST AUTOMOBILE Chrome Trim CHROME METALLIC TAPE

REAR BUMPER SIDE

A new tape that protects as it decorates. Just cut out the design you desire. No tools or Glue needed. Adheres to any smooth surface.
● It Reflects ● It Shines ● Resists Scratches
● It Lasts ● Easy to Apply ● Attractive
Roll ⅞ in. wide, 40 ft. long.
No. 272—POSTPAID $1.98

DUAL REAR AERIAL KITS

New 1955—Fits All Cars
1. Two 3 section aerials, 13" high when collapsed. Complete with a dual 22 ft. lead. Ready to hook up on radio.
No. 266—
POSTPAID $7.35

2. Dual HIDEAWAY aerials, 6½" high when collapsed. Complete with a dual 22 ft. lead.
No. 231—
POSTPAID $12.50

TWIN AERIAL FALSIES—6½" high. Chrome plated. Easily installed. Do not connect with radio.
No. 264—POSTPAID $2.19

Theft Proof HOOD LOCK KIT

Operates from the dash. Protects all Underhood Parts from Theft.

Fits Ford, Chevrolet, Plymouth and All Cars With Striker Bolt.

● Easy Step by Step Installation Instructions
● Prevents Hood from Being Opened When Car Is Locked
No. 56—POSTPAID, Each $3.95

WHITE WALL MARVEL KIT

Weatherproof. Contains Pure Colloidal White Rubber (Not a Paint or Enamel). Kit consists of a generous supply of genuine Texto rubber tire cleaner, 2 large bottles of White Wall for 5 tires.
No. 130—POSTPAID $2.90

BUMPEREX

Newest, Latest, Finest Bumper

EXHAUST EXTENSION

Looks just like exhaust comes through your bumper. No holes to drill. Heavy gauge bumper stock steel, triple chrome plated.
Use on either side of car or its pairs. Custom fit for all cars except Studebaker. State year, make, model. 8¼" long, 5" wide.
No. 271—POSTPAID Each $4.95

FIBRE GLASS BUG SCREEN

Life time material that is practically indestructible. Universal fit for all cars 1941 to 1955. Folds too, for easy storing. Easily installed. No holes to drill.
No. 145—POSTPAID, each $3.79

CHROMED HEADLIGHT GUARDS

Richly chromed to beautify, protect, plus streamlining the headlights. Easily installed. Hinged at top. Snap over all seal-beam headlights.
Stock No. 27
POSTPAID ..... Pair $3.95

CUSTOM ENGINEERED STAINLESS STEEL DOOR EDGE MOULDING

CUSTOM MADE STAINLESS STEEL

Gives Car Doors Beauty and Protection. Approved by original Equipment Engineering.
● Covers door edge completely from top to bottom.
● Covers ugly door edge paint chips and prevents denting.
● Has gleaming finish which adds beauty to doors and gives custom appearance.
● Can be installed in a few seconds.
● Has Double inside hem which insures permanent firm grip.
● Slips on easily, no screws, clips or bracket required.
No. 283—2 Door—Fits Ford 49-54; Chev., Chrys., DeSoto, Dodge, Plym., Pont. 53-54; Buick, Cad., Olds. 54.
POSTPAID $2.99
No. 282—4 Door—Fits cars above plus Lincoln, Mercury 52-54 & Ford only from 52-54. POSTPAID $4.79

NEW FIBERGLASS CUSTOMIZING KITS ALSO FILLS IN SPOTS, HOLES AND RUSTS OUTS

Has new Fibreglas material, tough plastics and resins that reinforce and become as strong as steel. It's so easy and simple to do a customize job, or repair any part of the car body. NO LEADING. NO WELDING, NO SOLDERING. No tools.
Stock No. 19—Kit and Materials to Cover 3 sq. ft. POSTPAID $3.78

Custom Grilles for 49-51 Ford

Will replace the original grille on all Fords 49-51. Made of heavy gauge steel.

Precision engineered for perfect fit and easy installation. Chrome finish and massive appearance.
No. 79—POSTPAID—Each $19.60

CHROME PLATED Aircraft type "3 FIRE" SPARK PLUGS

Outlasts Ordinary Plugs 3 to 1

Ideal for High Compression Engines. Custom engineered for each car.
● 2 Point Electrodes — "Lumox" Aircraft type insulators
● HIGH SPEED PERFORMANCE
● Hotter Sparks — Cools Quicker
● More Miles Per Gallon
Sizes for all cars. Give exact year, make and model when ordering. Stock No. 39
POSTPAID Each Plug ..... 89¢

STEEL VENETIAN BLINDS

One model fits all cars 39 to 55. Very easy to install.

All steel parts bonderized. Beautifully baked-enamel finish adds beauty to any car. Keeps out hot summer sun but allows perfect visibility. Protects seat covers.
No. 20—POSTPAID, Each $3.69

ILLUMINATED FENDER FLAPS

For All Cars and Light Trucks

Made of one piece molded rubber with attractive chrome strip. 2 Jewels and a lamp in the center attached. Universal type — fits all cars and all types of fenders.
No. 155—White.
POSTPAID, Per Pair $3.59
No. 156—Black.
POSTPAID, Per Pair $3.49

Engine OVERHAUL PELLETS

Engine Overhaul

Complete Cylinder & Ring Job. While you Drive. Just drop these pellets into spark plug holes & GO! Stop Oil Burning. Increases Gas Mileage. Restores Lost Car Power. Makes Motor Run Quietly. Eliminates Exhaust Smoking. Repower your engine the simple, speedy, low cost way. A factory-smooth, metallic layer is plated onto the pitted, scored & worn cylinder walls, & piston rings, restoring them to original size, shape and effectiveness. This is not an oil additive, a chemical mixture or a temporary tune-up.
No. 123—POSTPAID $4.95

MUSICAL AUTO HORN

Plays the Hootchy-Kootchy Dance or Pick out other tunes, like on the Piano. Easy to play — Just pick out the tunes on numbered keys.

Horn in completely wired and assembled — Easy to install. SIZE OF HORN—Ht. 8½".
No. 244 ..... $17.95

VOLTAGE DROPPING RESISTOR for 12 Volt Systems to Drop to 6 Volt

For installation of 6 volt accessories, also small 5 and 6 tube radios, in any vehicle using a 12 volt system. Lasts Forever. No More "Burn-Outs". 5 Minute installation.
No. 122—POSTPAID $3.45

PLASTIC "SEAT-SAVERS"

One size fits all makes of cars

● Made of finest heavy gauge plastic with reinforced stitched seams.
● Completely protects present covers—front, back and seat.
● Ideal for shop men to protect upholstery.
● Slips on and off in a jiffy—no elastic or tapes to tangle, fray or pull out.
● Completely washable, waterproof and greaseproof.
No. 82—POSTPAID —Each seat $2.95

1955 Ford Chevrolet DRESS UP OUTER HEADLAMP RIM

Give your 1955 Ford or Chevrolet that Custom Look. Gleaming chrome plated die cast with painted trim. No holes to drill. Snaps on over present headlite rim. Replaces regular painted rim.
No. 133—State Car POSTPAID $4.99

AUTO SAFETY BELT

Made of Nylon Webbing 2" wide. Has chromed zinc line buckle. Universal for all cars and all types of seats. Comfortable to fit everyone. Won't wrinkle clothing. Fastens to floor or frame with eye bolts for strong and sturdy support. Has snap fastener for quick and easy removal from car. Complete with fasteners and instructions. Your choice of 4 beautiful colors to harmonize with car interiors. Green, Red, Blue & Grey. Specify color when ordering.
No. 126—POSTPAID $9.55

TIMING LIGHT

Bakelite case. Neon bulb with focused lens. Produces extra strong light. Use for ignition timing, synchronizing double points, testing spark advance, distributor shaft and spark plugs. State 6 or 12 volt.
No. 179—POSTPAID.
Each $3.99

FIBRE GLASS PACKED RACKET BUSTER EXHAUST EXTENSION

Chrome Plated

Ideal for cars that have mufflers that are too loud, or too noisy. Also mellows loud duals. Eliminates 50% of all present exhaust noises. Scientifically jested and proven to work in all installations. 3" Diam., 10" Length. Eliminates Offensive Rackets. Packed with Fibreglas.

Fits 1½ to 2½ in. tail pipes. State size wanted.
No. 67 POSTPAID Each $3.74

BERMUDA CLANGING BELL

It's the New "Rage"!

Gives a most amusing and commanding two-tone bell sound. Easily installed under car floor by driver's seat. Step on plunger. highly polished. Fits any car.
Stock No. 49 POSTPAID $3.95

CUSTOM & HI-SPEED SPECIALS

HOT ROD FENDERS

For use in Custom Re-Designed Autos, Trailers, Cycles and other Mobile Equipment. Sturdy—Light—Durable. Made of 20 gauge steel. Contoured to fit all automobile tires. Universal mounting brackets adapt to standard brake backplates. Prime finish—ready to paint.
No. 21
Pair $8.95

KNOCK OFF TYPE SPINNER Die Cast Bright Chrome

Can be bolted on to most any hub cap or full wheel disc.

Gives car that Continental Look. Round part 3⅜" diameter, overall length including Knock-off 7¾", thickness ¾".
No. 70—POSTPAID—SET of 4 ..... $5.21

QUAD CARBURETOR ADAPTERS

For mounting QUAD Throat Carburetors on manifolds now using 4 bolt or dual throat or 3 bolt dual Ford type Carburetors. Made of High Quality Cast Aluminum. Precision made for perfect adaption. Polished to high chrome like lustre.

4 BOLT DUAL TO QUAD CARBURETOR

Buick	49-53	Mercury	49-53
Cadillac	38-50	Pontiac 8	40-41
Dodge V8	53-55	Others with 4 bolt dual throat carburetor.	
Hudson	47-51		
Olds. 8	37-52		

For Ford V8 32-54 & Others with 3 Bolt dual throat Carburetors. State Year, Make & Choice of 3 or 4 Bolt.
No. 212— POSTPAID $5.40

Electric TRUNK KIT

This Electric Trunk Release Kit opens trunk from inside the car by the touch of a button. Easily installed.

For 36-53 Ford & Mercury. All C.M.C. 49-52 except 49 Oldsmobile 98.
State year, make & model.
No. 76—POSTPAID, Each $6.56

Custom Built Dual Exhaust Sets

Dual exhaust systems guarantee more horse power, saves your gas, lets your engine breathe properly. Eliminates costly back pressure. Gives your car real-up-to-date "zip". Choice of regular, Hollywood Steel packed or Deep Tone Fiber Glass Mufflers. All custom fit. Easy to install with complete instructions. Be sure to state year, make, model, body style of your car. Also state if you have power brakes, power steering, standard or automatic transmission.

DUAL EXHAUST SETS

CAR & YEAR	No. 265 Lite Muffler	No. 266 Less 2 Reg. Mufflers	No. 87 2 Steel Mufflers	No. 267 2 Glass Mufflers
Buick 53-55	$15.75	$27.95	$31.45	$26.65
Cad. 50-51 exc. convert.	12.85	22.85	24.95	...
Chev. 1955	11.35	17.09	21.85	21.25
Chrys. 51-53 exc. convert.	10.75	42.50	34.45	28.65
DeSoto 52-54 exc. convert.	13.95	39.65	29.25	23.85
Ford V8, 35-53.	9.75	15.25	19.85	19.65
Ford V8, 54-55.	10.85	17.50	23.85	20.75
Lincoln 49-51	14.95	24.95	35.95	...
Lincoln 52-54	19.98	40.35	42.75	...
Mercury 39-53	10.45	17.35	19.85	20.35
Mercury 54-55	10.85	22.15	23.95	22.25
Olds. 48-53	12.45	19.95	23.85	22.35
Olds. 54-55	12.85	20.35	25.35	22.75
Pont. V8, 55	12.35	20.95	24.35	22.25
Plym. V8, 55	12.35	19.75	22.45	22.25
Stude. V8, 51-52	16.25	22.35	26.95	25.15
Stude. V8, 53-54	14.25	21.15	25.95	25.15

Sparkling Chrome Plated ROCKER ARM COVERS

Sharp Custom Appearance

Top off your engine with gleaming beauty! Easy to install. Just remove old cover and gasket from head, put down new gasket and attach. Necessary gaskets included.

No.	Buick V8, 1953 Super &	
276	—Roadmaster all 54-55	Pair $17.75
277	—Chevrolet 6, 37-55	Each 8.95
278	—Buick 8, Olds 8, 51-55	Pair 13.50
279	—Ford 6, 52-55	Pair 13.50
280	—Ford 8, 54-55	Pair 19.95
281	—Olds. 8, 49-50	Pair 18.50

New "Jet-Flo" BUMPER GUARDS EXHAUST AND BUMPER GUARD COMBINED

Gives the Appearance of Duals on Single Exhaust Systems

Complete bumper guards with adapter pipes included. EASILY INSTALLED, just remove old bumper guards and replace with JET-FLO'S.
Stock No. 33—
Set ..... POSTPAID $14.95

WINDSHIELD GLARE ELIMINATOR

Gives Windshields and Windows Same BLUE-GREEN TINT as in the most expensive cars. Sprays Transparent Plastic Film That Reduces Glare and Heat! Spray right on, lasts indefinitely. Free of distortion. Can be removed with lacquer thinner. 6 oz. self Pressurized LEV-R-JET Spray can.
No. 134—POSTPAID $1.99

"Hollywood" WOLF WHISTLE

Intake Manifold Whistle! Gives the Wolf Call. Imitates a Barking Dog and other Effects. Simple to install works off the intake manifold
No. 61—POSTPAID Each $3.42

CHROME PLATED "DRESS-UP" Air Conditioned VENT KIT

KEEPS STEAM OFF REAR WINDOWS.

Kit includes Vents, hose and fittings.

● Increases heat flow over 30%.
● Clears away cigarette smoke with windows closed.
No. 108—Complete Kit. POSTPAID $8.79

Chrome Plated Air Conditioned Vents only
Makes car "look" air conditioned.
No. 109—POSTPAID, Pair $4.29

Chrome Plated Flared Skirts

CUSTOM FIT CHROME PLATED for these cars:

Stock Number		
104 fits—	Chevrolet 53-55	Each Pair
	Ford 49-55	$14.95
	Mercury 52-54	
	Plymouth 53-55	

No. 105—Universal for these cars:

46-50 Chrys.	46-49 Frazer	Each Pair
46-52 DeSoto	46-49 Kaiser	$14.95
46-52 Dodge	49-50 Olds. 76 & 88	
46-51 Ply Exc. Sub. 88 Exc. 4 Dr.		

SAVE UP TO 50%—Fast Service and 100% Satisfaction Guaranteed

CHROME PLATED NEW 1955 MODEL

SUN VISOR

Advance Model Sun Visor For 1952-54 Cars. Gives cars that new 54 and 55 look. Chrome plated with underside painted, with a cool easy-on-the-eyes green. Ultra smart on all cars. 3½" wide at the widest point and tapers to conform to the car.

Made for the following cars—

54-55 BUICK, Special & Century	52-54 MERCURY
53-55 CHEVROLET	54-55 OLDS.
52-55 FORD	53-55 PLYMOUTH
No. 81—Specify exact year, make & model Each	53-54 PONTIAC $9.15

DEEP TONE Fiber Glass Packed MUFFLERS

Increases horsepower. Increases gas mileage, straight-thru construction, no back pressure, no high pitch irritating noises, deep powerful non-offensive tones. Specify make and model car.

Stock No. 87. POSTPAID $4.95

Ford-Merc Montclair DRESS UP TUTONE TRIM KITS

For 49-55 Fords and 52-55 Mercury

Gives Montclair Look for all models. Complete kit with easy to follow instructions. Makes perfect separation for contrasting color tone. Stainless steel for lasting beauty. State year, make and model.

No. 112—POSTPAID, each Set $7.50

BURGLAR ALARM

Completely Automatic —Blows Horn if the Car Is Molested.

No. 17— POSTPAID $2.95

AUTO FABRIC SPRAY

For a New Looking Car Interior. Brightens and Freshens Faded and Soiled Fabrics

12 ounce pressurized cans for use on headliner, door panneling and floor covering. Does not rub or fade. Can two-tone upholstering. Choice of all popular colors.

No. 34—POSTPAID $2.95

CUSTOM & HI-SPEED SPECIALS

EXHAUST HEADER AND DUAL MUFFLER SETS

These sets are the most efficient and finest made—so designed and constructed to—

- Increase Horsepower at Least 10%
- ELIMINATE BACK PRESSURE
- Give Higher Top Speed • Better Idling
- More Miles per gal. Smooth Performance
- Precision Built for Easy Installation

Superior in every way because they are—

- Constructed of Heavy Gauge Steel
- Designed with smoother curves for easy flow of exhaust.
- Ground Flanges for perfect alignment and leakproof installation.

You can install this set in less time because it is made with special longated holes for easy adjustment. Check our low prices

- Dual Side Tail Pipe
- Clamp Set
- Pair Headers
- Pair Extensions
- Easy-to-follow instructions

Choice of Headers without Mufflers, with 2 Hollywood Steel Packed, with 1 regular, or with 2 glass packed mufflers.

CUSTOM DUAL HEADER KITS

CAR & YEAR	No. 268 No. Req. Mufflers	No. 269 No. Req. 2 Steel Mufflers	No. 80 No. Req. 2 Glass Mufflers	No. 270 No. Req. 2 Glass Mufflers
Buick 53-55	$53.95	$66.95	$68.10	$63.55
Cad. 50-51	44.95	52.35	56.95	
Chev. 1955	37.45	43.95	47.95	47.39
Dodge 53-54 exc. convert.	51.50	63.05	63.25	61.40
Ford V8, 35-53	26.45	31.95	36.15	36.35
Ford V8, 54-55	33.45	39.95	45.45	43.35
Lincoln 49-51	43.95	54.95	54.95	
Lincoln 52-54	40.95	54.95	63.75	
Mercury 35-53	26.45	31.95	36.15	36.35
Mercury 54-55	33.45	39.25	45.45	43.35
Olds. 49-55	34.45	41.50	45.85	44.35
Plym. 1955	33.50	42.15	44.45	44.40
Stude. 51-52	40.50	46.25	51.25	50.40
Stude. 53-54 Coupe	52.45	58.35	63.15	62.35

Be sure to give make, year, model, body style & state if you have Power Brakes, Power Steering, Standard or Automatic Transmission.

SENSATIONAL NEW IMPROVEMENT! "TRACTION MASTER"

Prevent Front-End "Dive" When Stopping. Increased Traction When Starting.

Added Safety Lower Maintenance Improved Riding!

"Traction Master" gives amazingly INCREASED TRACTION when starting—PREVENT FRONT-END "DIVE" when stopping—Eliminates driveline "jump" 100%! Prevents axle housing from rotating. Up to 40% QUICKER STOPS! Safer, smoother ride. Much longer life for brake lining, springs, shock absorbers; U-joint and axle. Fits cars with leaf-type rear springs. Fits: DeSoto, Dodge, Plym. 42-54; Chrys. Inc. Merc. 49-54; Chev. 55; Ford 49-55; Hudson 52-54; Olds. 51-55; Studebaker 53-54. Specify car, year, model and stock No., when ordering.

No. 275—Per Pair $39.95

Cadmium Silver Connecting Rod BEARINGS

For Ford 42-48—Mercury 39-48

Ideal for Hot Rods, Road & Track Cars. Less likely to scour crankshaft. Excellent heat transfer (Can be used in Ford & Mercury 49-52 by using .29A in. Furnished in following sizes: —Std., to .030. State size wanted.

No. 274—POSTPAID. Pair $3.39

DYNA Highly Polished Aluminum CARBURETOR SUPERCHARGER

Easily installed. Complete with gasket cap, screws & instructions.

A highly efficient mixing chamber that actually mixes gas and air with volcanic force. Lowers the fuel-air temperature 50 to 60 degrees, allowing the mixture to enter carburetor before condensation takes place.

- INCREASES MILEAGE
- INCREASES POWER
- GREATER ECONOMY
- GREATER HORSE-POWER
- Eliminates "PING"

Many owners report complete absence of "Ping" due to uniform fuel dispersion, even with low test fuel. For All Cars. Give Exact Year, Model and Make of Car.

No. 101—POSTPAID, Each $23.60

DUAL POINT PLATES HIGHER TOP SPEED

A double-thrust Self aligning Bearing Distributor Plate Assembly. Quicker starting. More power. Better performance. Greater coil saturation. Smoother acceleration (at all speeds). Greater gas mileage. Longer spark plug life. (Hotter spark assures complete combustion!. Specify make and model.

Stock No. 14—Plymouth, DeSoto, Dodge Chrysler POSTPAID $4.95

Stock No. 46—49-53 Ford V8 & Merc—33-54 Chev., 37-49 Buick, Olds & Pont.—$3.95 each POSTPAID

New Modern "Caddy" Style Headlite Rims

- TRIPLE CHROME PLATED
- VERY EASY TO INSTALL
- NO HOLES TO DRILL

Gives cars that "Look of Tomorrow" — for that modern appearance.

Stock No. 29—fits 1952-53 Fords, 1954 Ford, 1953-54 Chevrolet, 1949-53 Cadillac, 1949-52 Pontiac.

For the above cars. POSTPAID ..... pr. $6.95

Stock No. 95 Fits 1949-52 Buick

48-49 Cadillac	49-51 Mercury	
49-52 Chevrolet	49-54 Nash	
49-50 Chrysler	48-50 Olds	
49-54 De Soto	49-54 Plymouth	Pair
49-54 Dodge	48-53 Packard	POSTPAID,
49-51 Ford	51-53 Henry	
47-52 Kaiser-F	46-53 Willys	$5.40
No. 96—For 1955 Ford. POSTPAID	Pair	$8.85

TAIL LIGHT VISOR

FOR FORDS 1952-55

Stainless steel. Easy to install.

No. 228—POSTPAID. Pair $1.98

HIGH COMPRESSION HEAD GASKETS EXTRA-THIN .020" SOLID COPPER

These copper gaskets are only .020" thick. It is the same as milling heads .040" to .050", thus "ups" the motor to give amazing acceleration power and mileage. State exact year, make and model when ordering. (If car is V8 type two gaskets are furnished at no extra charge.)

Stock No. 31—POSTPAID $4.95

CHROME PLATED DUAL EXHAUST KIT

UNIVERSAL FOR ALL CARS

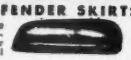
Give your car that mellow, purring tone of super power at low-low cost. Easy to install. Fits all cars. Two chrome tubes 12 in. long plus dual flexible pipe. Complete instructions.

No. 127— POSTPAID $7.45

Like above with two 134 in. tubes—18 in. long. Fits all cars except Buick or Cadillac.

No. 128—Postpaid $5.45

Flared FENDER SKIRTS



All metal. Prime finish with rubber beading. For these models—

49-54 Chev. except Bel Air	46-54 Frazer	Give exact year, make & model
46-54 DeSoto	46-54 Kaiser	
46-52 Dodge	49-50 Olds., 76, 88	
49-51 Ford	46-52 Plymouth	
1955 Ford	49-52 Pontiac	
	52-54 Willys	

No. 59 Pair $6.75

52-54 FORD & MERCURY

No. 83—Pair $7.94

118 55 Chev.	$11.95	120 53-54 Ply.	$8.87
119 55 Merc.	$8.50	121 55 Ply.	$8.95

Quick Change HELPER SPRINGS

For All Cars & Trucks Don't let heavy loads streak the springs on your car or truck.

- Extra buoyancy. Spring action increases with the load. Extra strength.
- Extra safety.
- 1500 Lb. Extra Capacity. Once on they can be installed or removed in a jiffy. For a quick change over from normal springs to heavy duty. Use quick change Helper Springs. Will fit all ½ ton and ¾ ton Pick-Up or Truck. Has Bronze Base—comes complete with all "U" bolts and special brackets. 100% Universal. Complete with Instructions.

Chev. 37-55	Ded. 39-55	Nash 41-48	
Ford 36-48	Dod. 39-55	Merc. 49-55	
Linc'n 36-48	Ford 49-55	Olds. 36-55	
Merc. 36-48	Hud. 35-55	Plym. 37-55	
Buick 39-55	Kaiser &	Pont. 46-55	
Cad. 49-55	Fraz. 46-55	Pack. 38-55	
Chrys. 39-55	Linc'n 49-55	Studeb. 36-55	
		Will's 40-55	

Specify Year, Make and Model when ordering.

No. 86—POSTPAID Per Set $14.95

Hurricane Muffler Bi-Pass Unit

Complete with cut out, dash control, cut-in, 48 in., 1¾ in. Flexible pipe, clamps, instructions. Fits all 1¾ & 2½ inch exhaust systems. Use 2 for dual exhausts. Get that open-pipe roar.

No. 129—POSTPAID $8.70

CUTOUT UNIT ONLY—operates from dash. Easy to install.

No. 66—POSTPAID $3.42

Flash! with the New 360 degree Warning Light

360 degree warning lamp that is ideal for Ambulance, Police, Fire Fighting, Road Maintenance, Public Utility and Wrecking Equipment, etc. The lamp is five inches high and its base is five inches in diameter. The massive lens and the flashing 50 candlepower bulb combine to produce a powerful beam visible for great distances in bright sunlight and even greater distances at night. Complete with 50 candlepower 6-8 V.S.C. bulb standard, choice of red, amber or blue lens. State choice

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AUTO AIR CONDITIONER

Motorized with a 6 & 12 Volt Motor. Just place it on any car window and plug it into cigarette lighter.

Holds 6 quarts of water. Lasts all day without refilling.

Offers driving comfort in the hottest weather with uniform and constant flow of cool air at all times, even when driving in slow city traffic or waiting for stop light.

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No. 139—POSTPAID. State 6 or 12 volt. $28.75

CAR COOLER like above but non-electric. Works by air action while driving. Easily mounted.

No. 140—POSTPAID $14.35

FORD TUTONE DRESS-UP TRIM KITS

BEFORE

AFTER

FORD FAIRLINER

Custom Kit for 1955 Ford Mainliner for that Fairliner Look. Ford kit can be used on 1949-54 by cutting to fit. Full instructions included. These kits make perfect separation for contrasting color tone. Stainless Steel for lasting beauty.

No. 224—Ford Kit. State 2 or 4 Dr. $14.95

Winged Bombsight 1955 Chevrolet Grille Ornament

Just the thing to add that finishing touch to the front end styling. Gives a bigger and wider look to the car. Fits any mesh or honeycomb type grille and can also be used on most deck lids for that custom look. Heavy triple chrome plated die cast ornament—22" long, approximately 4" center "Bombsight". Install in a minute. No holes to drill.

No. 136—POSTPAID $7.55

Like above with "Motoramic" center. 23¾" wide, 4¾"x5¾" center medallion.

No. 137—POSTPAID $8.55

1955 Ford Rear Light Top Trim Chrome Plated Ribbed Casting with Visor Effect

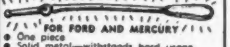
Fits all 55 Fords. No holes to drill. Easy to install. Approx. 5 inches high tailored to fit lite.

No. 131— Solid Top Trim. POST-PAID, pr. $4.20

No. 132—Same as above with opening for back up lites. POST-PAID, Pr. $4.20

No. 134—Bottom Trim to match. POST-PAID, Pr. $6.30

All Chrome Gear Shift Lever



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- One piece construction
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No. 113—Ford 40-53, Merc. 40-48

No. 114—Ford 54-55.

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1955 FORD Spinner Grille Ornament

A Modern design 7" diameter round ornament in a choice of Chevered Flag or "V" emblem in the center. Triple chrome plated heavy die cast. Fits onto grille. No holes to drill.

No. 138—POSTPAID $7.25

1955 FIESTA PROP TYPE CHROME PLATED WHEEL DISCS

Fits all cars with 15" wheels. Note the Extra Deep Well.

Choice 1955 Olds. Medallion or Plain Medallion.

Gives the car that Ultra smart modern look. Deluxe heavy duty disc. Gleaming Chrome Plated with baked-on white enamel rings. 30 spring steel fingers hold disc on properly without danger of falling off.

Set of 4.	POSTPAID
No. 223—Plain Medallion	$33.50
No. 225—Olds. Medallion	

New Items New Low Prices

1955 LOOK for 52-54 Fords

This Rear Fender Trim Gives your 52-54 Ford that graceful 1955 Look.

Long, Sleek, Tapered, Triple Chrome Plated accessory that commands attention. 29 in. long, 5 in. high. Tapers to ¾ in. Easily mounted. Sturdy, strong cast metal for lasting beauty. Looks like part of the car.

No. 285—Ppd., Pr. $19.95

The New Jeweled "V" EMBLEM CHROME-EDGE FENDER FLAPS

New modern design of the finest quality. Features the "Jiffy" clamp for easy installation. Fits all cars. Choice of BLACK OR WHITE.

Each pair includes FREE Personalization. Can be used plain, too.

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No. 224—WHITE. POSTPAID. Pair $4.50

BODY OR FENDER MIRROR ADJUST THE RING! ADJUST THE HEAD!

Fits on the body or fender, right or left side, of all cars. 4" replaceable head, 4½" diam. chromed ring. Non-glare glass mirror. Installs on wrap-around or standard windshields.

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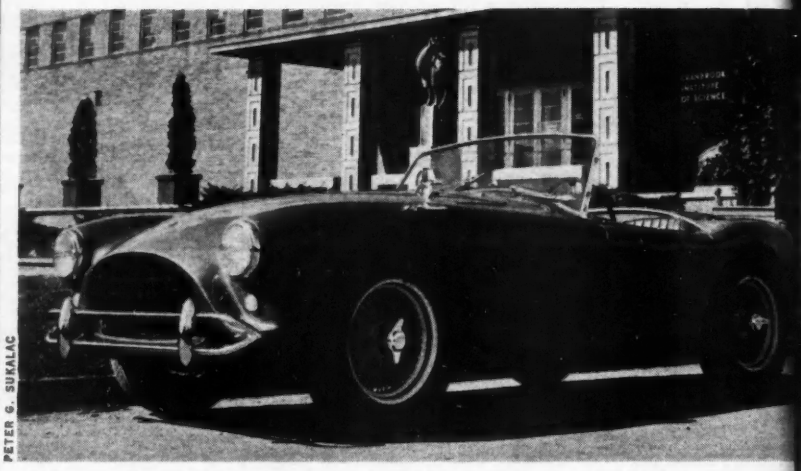
SOMETHING OLD, SOMETHING NEW



PETER G. SUKALAC

Built on only a 90-inch wheelbase, the A.C. Ace roadster is reported to have excellent roadability and handling characteristics. Italian influence is obvious

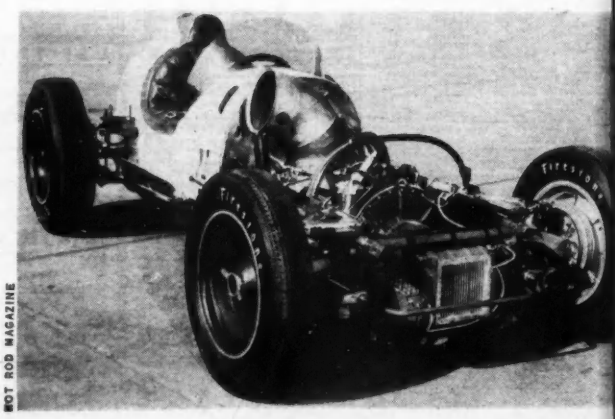
DESPITE ITS definite Italian influence, this A.C. Ace is another British contribution to the U.S. sports-car market. The hand-formed aluminum body covers a tubular chassis; 2 heavy tubes parallel to each other are the main members to which the suspension and differential are anchored. Tubular outriggers carry the body.

The 4-wheel independent suspension consists of A.C.'s traditional transverse leaf springs fore and aft. Airplane-type shocks are inclined between frame and lower wishbones. Since the differential is bolted to the frame, open shafts carry the power to the rear wheels. The 6-cylinder engine features overhead valves and camshaft driven by a double-roller chain with patent spring tensioner; it has the usual aluminum head. Its original horsepower of 85 has been upped to 95, with a corresponding increase in compression ratio from 7.5 to 1 up to 8 to 1. Displacement is 121 cubic inches.

An efficient-looking manifolding system supplies fuel-air mixture via 3 horizontally positioned carburetors. Individual exhaust headers are located on the opposite side of the head; exhaust passes to and from the muffler thru dual pipes. The battery case is mounted above the frame member below the steering column, beside the engine.

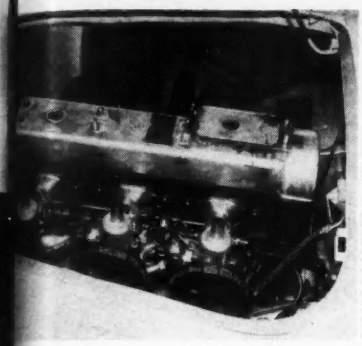
A new Aceca coupe will also be available soon in the U.S. Tho similar in design, its lines carry the Italian influence even further. The roadster is $3800, the coupe $4500.

Gas Turbine Car



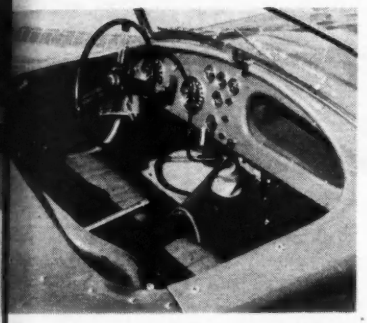
HOT ROD MAGAZINE

Huge exhaust stack on SAC-built gas turbine car emits jet-like scream. With good brakes to overcome lack of engine compression, it might end up at Indy next year

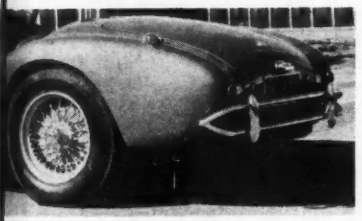


PHOTOS BY GEORGE A. YERKES

...minum-block engine has good breath-..., uses 3 S.U. carbs, individual exhaust ...nifolding system. It's rated at 95 hp



...terior is typically austere. Smith in-...ruments adorn a leatherette-covered ...sh. Car has adjustable bucket seats



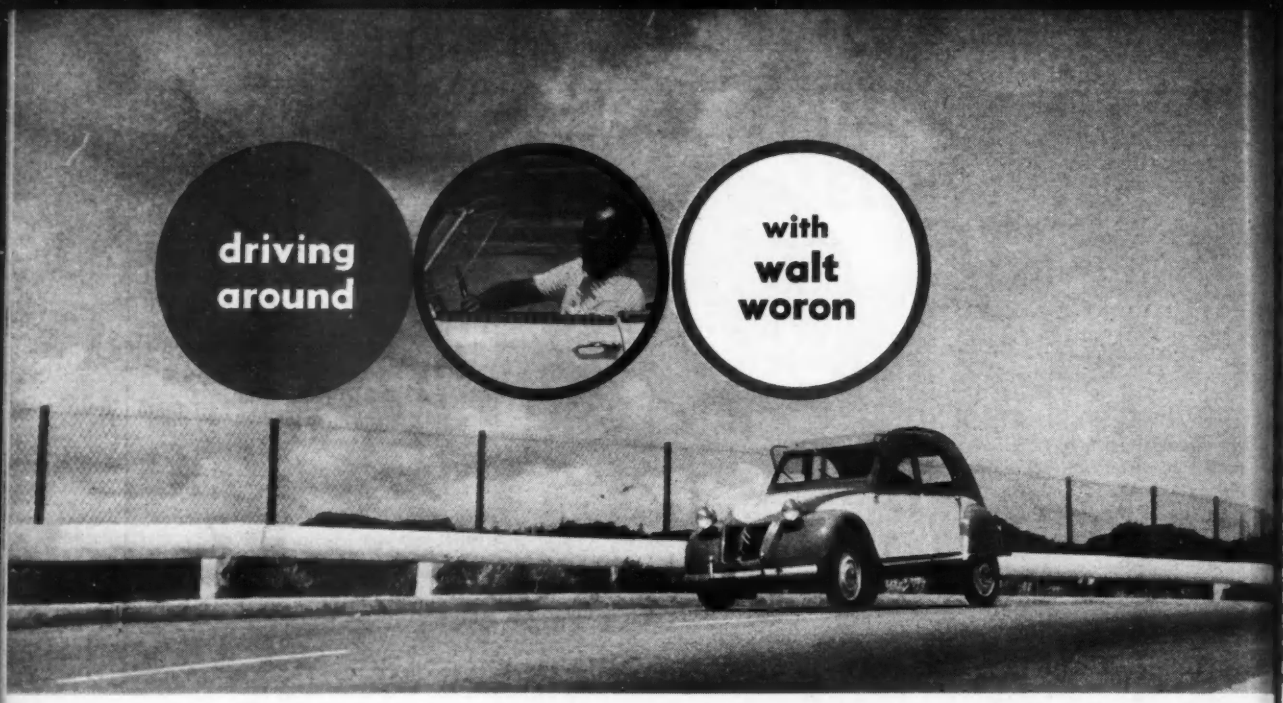
...ear-end styling is simple enough. Its ...ompanion car, the A.C. Aceca coupe, ...s squared-off rear fenders, fast back

...r for Indy?

ONE DAY LAST MONTH a jet-like whine echoed across the runways at ...maha, Nebraska's Offutt Air Force Base. ...t there wasn't an airplane in sight. The ...irmen there were testing a new turbine-...owered race car which they had built and ...icknamed the "Sacfireboid."

The car is a Kurtis 500K which was ...rned over to the men by Firestone Rub-...r Co. (It will be used for high-speed tire ...sts.) Boeing Aircraft Co. came through ...ith the powerplant—a 195 horsepower Boe-...g 202 gas turbine. The Air Force put the ...hole thing together.

With no special preparation the car started ...n a test run; took off smoothly and rather ...owly; still got to the ¼-mile marker in ...1.4 seconds.



CITROEN 2CV

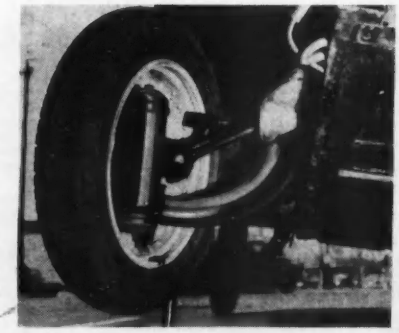
I'VE AWAITED THIS OPPORTUNITY with considerable enthusiasm, unabated by delays and unavailability. Hearing about the new Citroen 2CV in the latter part of '52, reading about it and being particularly intrigued by *The Autocar's* (London, England) glowing tribute that here was ". . . undoubtedly the most original design since the Model T Ford," I couldn't wait to get my hands on one. It is only recently that any 2CVs have been imported. When I heard of one in the hands of the new West Coast distributors (Armand Garnier and Maxime Perrachon), I immediately arranged for a driving impression.

Once you overcome a jolt at the car's somewhat homely appearance, you begin to acquire more and more respect for the engineering in this, "the most sought-after car in France . . ." (again according to *The Autocar*). Whether it will meet the same reception in this country is debatable. The American car-buying public is known for its distaste of anything that smacks of austerity—and austere the 2CV is. Part of the explanation lies in the fact that it was designed and tooled-up during the German occupation—when it was doubtful if many modern facilities would be available for building the car. Suspension is by 2 longitudinal springs with a leading arm in front, trailing arm in rear on which the wheels hang; seats are made of rubber bands instead of springs; headlights are adjustable by turning a knob from within the car; windshield wipers work off the speedometer gear and also can be worked by hand; there's a built-in jacking provision, and inboard front-wheel hydraulic brakes. The list goes on and on, and is quite amazing in a package priced at $1195.

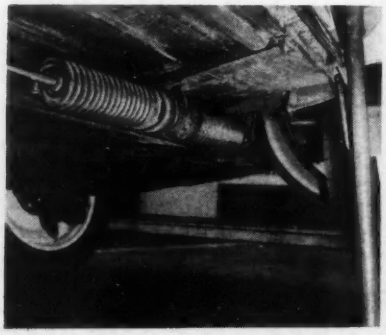
The engine is a 2-cylinder, horizontally opposed, air-cooled powerplant of 12 hp. Drive to the front wheels is between the engine and transmission. The 4-speed transmission operates thru a conventional clutch and an auxiliary centrifugal clutch that enable you to stop and start without declutching, provided the engine rpm is below 1000.

The dash-panel-mounted gearshift is peculiar in shift pattern: you pull back and to the left from neutral on the L-shaped handle to get into 1st, push forward to get into 2nd, straight back to 3rd, forward and right twist to get into overdrive. After I got onto the shift pattern, I made a few checks from a standing start to 30 mph, using 1st, 2nd, and 3rd gears. I made it in 12 seconds. I also took it up a 26 per cent grade which it crested at just under 10 mph, still in 1st gear. Top speed on a flat stretch was around 55 mph.

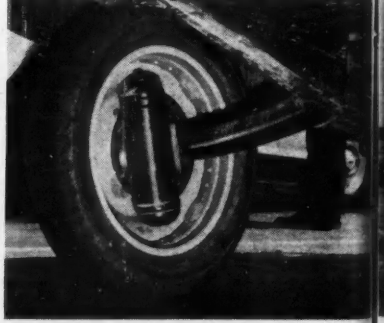
If you didn't have to consider the transmission (not that it's a hard thing to get onto), the car would be an absolute cinch to drive. There's no resistance to your movement of the steering wheel and you never have to fight it thru any situation, whether it be over streetcar tracks, a crowned road, tarstrips, off the shoulder, or what. The only parking problem is finding a spot where you won't feel vulnerable to "monsters" around you



Front shock houses spring which acts with iron weight to suppress wheel hop



Front leading arm and rear trailing arm are joined by large longitudinal spring



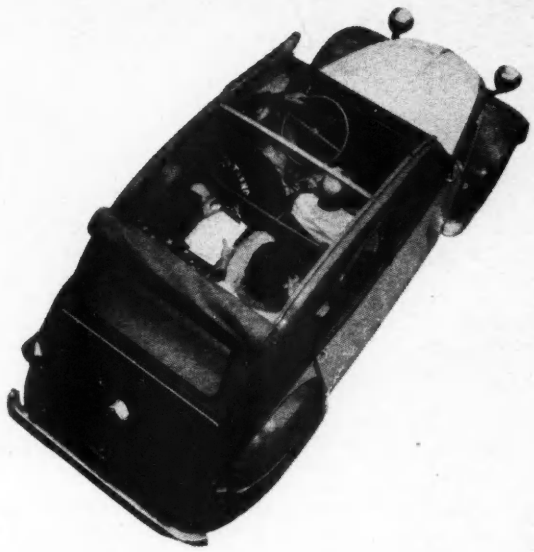
Rear gets "warning" when front hits bump and spring tightens to resist shock

The "rubber band" seats are surprisingly comfortable even over the biggest bumps. There's just *enough* legroom, but for a 6-footer on down there are many adjustments to get you closer to the tiny pedals. Your movement of the horizontally positioned wheel isn't restricted by the door panel or by your front seat passenger. The only instruments you can concern yourself with are the speedometer and ammeter. The parcel shelf below the bowl is suitable for tools, knickknacks, small packages.

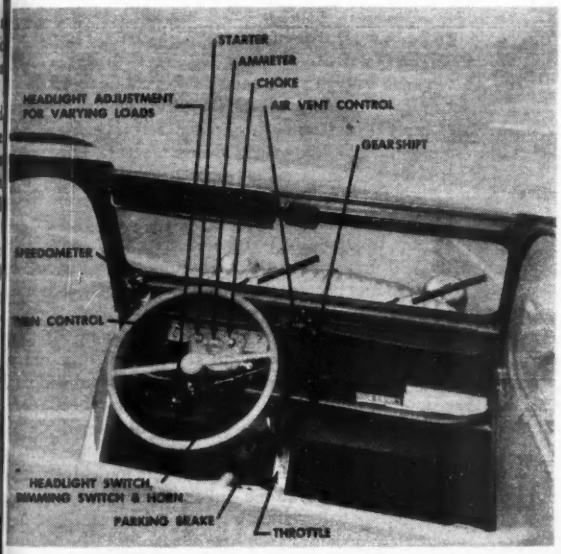
Vision is good forward thru the flat windshield and over the downward-sloping hood. Out the rear, it's not as good, with a wide section from the rear door window to the rear window.

The 4-wheel hydraulic brakes bring the light (1100-pound) car to a quick, sure stop. Under ordinary conditions I never had any trouble stopping, or with fade. The low weight per square inch of brake lining probably has lots to do with this.

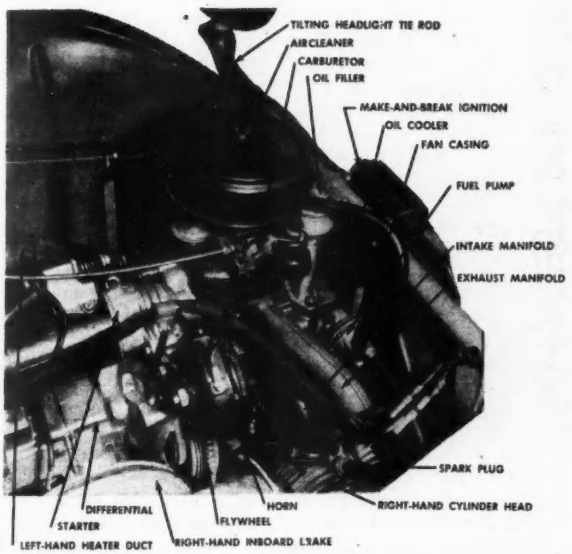
The Citroen 2CV leaves me with the impression that many fine engineering features have gone into too fragile a package; these same features in a larger and more esthetically designed car would really make the competition scramble. Can you imagine a car of 93-inch wheelbase with a ride as soft as cars twice its size, able to seat 4 persons? That gets 35½ mpg in hard, in-town driving, and that's so simple to work on that a competent mechanic can assemble a completely torn-down engine in just 4½ hours? A car that you can convert to a utility wagon by removing the rear seat, doors and decklid in a matter of minutes? All this is in the 2CV; imagine it in a larger car!



Photos by Bob D'Olivo and Joe Moore

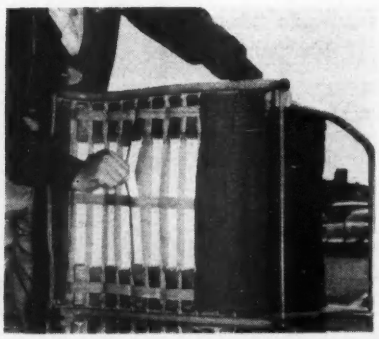


Compact driver's seat is all business. Note dash-mounted shift lever and eye-level speedometer which indicates shift points



Front wheels are driven from this 12-hp, air-cooled, 2-cylinder, horizontally opposed engine. Top speed is about 55 mph

Rear seats, deck lid and doors come off in a jiffy for conversion to light truck



Seats mounted on large rubber bands give surprisingly soft, comfortable ride

"Gas gauge" is long dipstick housed in filler pipe—economy and accuracy here

PHOTOS BY BOB D'OLIVO

PORSCHE 1500 SPEEDSTER

PORSCHE HAS BECOME A MAGIC NAME to more than just the sports car *aficionado*. In the short span of just 6 years the dream of Prof. Dr. Ing. h.c. F. Porsche has established for itself a niche in the hall of automotive achievement. Dr. Porsche, for whom the car was named, used the wealth of experience he gained in building and directing the racing of the famed Auto-Unions in putting together this postwar phenomenon. It's a car that's been seen in many forms. Unless you see all of them all of the time, you don't quite realize that the tiny factory in Stuttgart, Germany, doesn't bother to hold back their improvements for one model, or one year's model. An example is the '55 Porsche, which incorporated 43 engineering improvements *after* the new models came out!

The latest version, and to my mind the best for reasons I'll explain as I go along, is the Porsche Speedster. In this roadster form (padded soft top, side curtains) the car comes with 2 different engines. The one I borrowed from Johnny von Neumann (Competition Motors, southwestern states distributor of Porsches and Volkswagens) was the higher powered of the 2—the Super (the Continental is 18 hp less). When I picked up the car from Sam Weill, Johnny's Regional Manager, he explained that the highly tuned 84-hp engine, which had pushed this car to 1st in its class (under 1500 cc) at Willow Springs recently (under the capable hands of Erich Bücklers), had been replaced with another Super engine. This was presumably to save the race engine for further racing.

The Porsche Speedster's size, power, easy shift and steering (it has the smoothest—yet positive—4-speed box I've shifted) make it fun to drive. The steering is light and quick (has only 2¼ turns lock-to-lock); there's not much weight on the front. You can zip thru traffic, making much better time than you can in larger cars because you can get thru tighter spots.

The 1st time I started the car, and every time later, the engine kicked over almost with the 1st touch of the starter button (positioned above the key). As it fires it begins a clattering due to its being air-cooled, but this is the nature of the beast. When you're driving, you don't hear it as much, except to look back after you go around a corner to see who's following you that closely. The new engine ran warm (190° F) in traffic, but never got any hotter.

The brakes are extremely good. They have a servo action: without applying more pressure to the pedal, resistance to forward movement gets better as you slow down. They are very positive; they get you out of situations where you may have delayed too long before hitting the small (tho adequate) pedal.

Driven at average speeds, even a driver who is unfamiliar with rear-engine cars would have no difficulty driving the Porsche; at these speeds it behaves pretty much like a conventional car. It's when you begin to "hot dog" it thru a corner that you may find yourself in difficulty; *i.e.*, as the rear end begins to slide around, a too-sudden push on the throttle will cause you to break traction, and you may swap ends (the power wants to continue around). A lighter foot, tho, will make it take a better bite and you "push" thru the corner. It's a matter of familiarity; the more you drive it, the better you like it.

It's important to remember that you're always pushing and not pulling. With a conventional car, when the rear breaks you pull it into line behind the front. With the Porsche, you have to push the front into line. If you push too hard at an angle, you get a reaction similar to that of a jack-knifing trailer.

It's like Bill Pollack (sports-car driver and owner of a Porsche on which he's racked up 41,000 miles) said, "The first thing to forget is that the engine is in the rear." And as Sam Weill advises, "Always *ease* on the throttle—don't punch it thru a corner. It's not until you've driven one of these cars for 3000-5000 miles that you really drive it right. You use the wheel less and the throttle more. Altho you can, you don't *throw* it thru the corners."

Acceleration-wise, the Porsche Speedster may not be the hottest thing going (what with all the power Detroit manufacturers are stuffing into their cars, how can the foreign builders with their little engines hope to keep up?), but it's certainly adequate for most purposes. We could probably have got somewhat faster times if we'd taken it into or beyond the red-line area of 4500-5000 rpm. But, as explained by Horst Rieschel, Competition Motors Service Manager, "Why take a chance on a bent valve for a possibly faster time? I wouldn't advise that a Porsche owner go beyond that limit."

From a standing start thru the gears, revving the engine to 4500 rpm in each gear, we averaged 14.7 seconds to 60 mph and 19.9 seconds to the end of the ¼-mile, where we were turning 68½ mph. I was able to clip 0.3 second off the ¼-mile time by having Jim Lodge get out of the car. This is explained by the fact that in a car of 1650 pounds the weight/power ratio is affected much more than in a heavier car. With one person in the car the weight/power ratio is 21.7 to 1, while with 2 it goes up to 23.8 to 1. In a heavier car (say 3900 pounds) with 180 hp, where the weight/power ratio is the same 21.7 to 1 with one person, the change isn't nearly as noticeable with a passenger, only going up to 22.7 to 1.

It took 6.0 seconds to get to a true 50 mph from 30 mph using 2nd gear only. To get from 50 to 70 (shifting out of 3rd into 4th at 4500 rpm, around 60 mph) took a short 10 seconds, then another 9.7 seconds to make the 5th-wheel speedometer read 80 (while the car's speedo was indicating 85).

For a sports car, and especially such a small one, the Porsche Speedster has a very smooth ride. It recovers quickly after a dip or bump, which seems to be inherent in torsion-sprung cars. There's absolutely no wallowing when it comes out of a dip; you've always got it under control.

The Porsche speedster feels totally different from other sports cars. Doors and cowl are high and sturdy, rear heavy

Getting into the Porsche Speedster isn't particularly easy, but it's no more difficult than most sports cars. You have to throw in one leg, then wrap yourself around the steering wheel. In contrast, male passengers find it easier to enter than most of its ilk, but the wide outer frame structure makes it rough on the girls. With top up, it's quite a chore, because you have to jackknife in; the top is extremely low, and if you're over 6 feet, your head is going to touch. (This is a fault that has since been rectified; the top has been raised about 2 inches.)

The seats are very comfortable: contoured, deep, well-padded. There's plenty of legroom and the seat adjusts back and forth to accommodate different-sized drivers. The seat also lifts forward to allow entry for the kids (or luggage) into the short-coupled, ledge-type rear seat. There's not loads of room left of the clutch pedal, but enough so you don't have to rest your foot on it. The steering wheel sets vertically in the driver's lap, right where I like it.

In driving the car, I found a minor amount of distortion in this "one-of-the-first" wrap-around windshields. The windshield frame and posts are one, and since they're so thin, vision isn't blocked. With the terrific slope to the hood (under which the fuel tank, spare tire, and a small box of groceries can be kept), you can see the hood just a few feet in front of the bumper. If the rear-view mirror gets in your way, you take a small wrench to loosen its grip on a vertical rod and slide the mirror to where it no longer gets in your way (Detroit, please note).

Putting up the soft top is absurdly easy: you reach behind you, grab the top's forward bow, pull forward so it reaches the windshield, and snap the 2 locks in place. It doesn't leave much room between the top and doors, tho, for seeing out, and with the side curtains on, you may as well be content with just looking forward.

The conclusion you draw after driving such a car as the Porsche Speedster is obvious: Where else are you going to get a sports car that has the performance, the ride, and the workmanship of this one? There are few cars in its price class ($2995) or above that can compete with it in an across-the-board comparison. Sure, it lacks certain features like roll-up windows, but if you want an open-air car you'd have no complaints on this score. Having a back seat (even tho small) makes it more practical for a family man, too. If you drive for the fun of driving, you'll *love* this one.

MASERATI

Brussels, Belgium
May 17, 1955

Dear Walt:

I was thinking about some of the driving impressions you and I discussed before I left for Europe. I've got some of those for you, but I've just had a *riding* impression that might interest you. During our visit to the Swiss Racing Drivers School at Lugano, Switzerland, and Campione, Italy, I was invited to ride a few laps around the former Grand Prix circuit at Campione in the latest 2-liter (122-cubic-inch) Maserati sports car.

The first thing I noticed was lack of seat belts (not too popular in Europe); next, as we were off, WOW! . . . the noise was terrific, even tho the split exhaust of the 6-cylinder double overhead cam engine is on the driver's side.

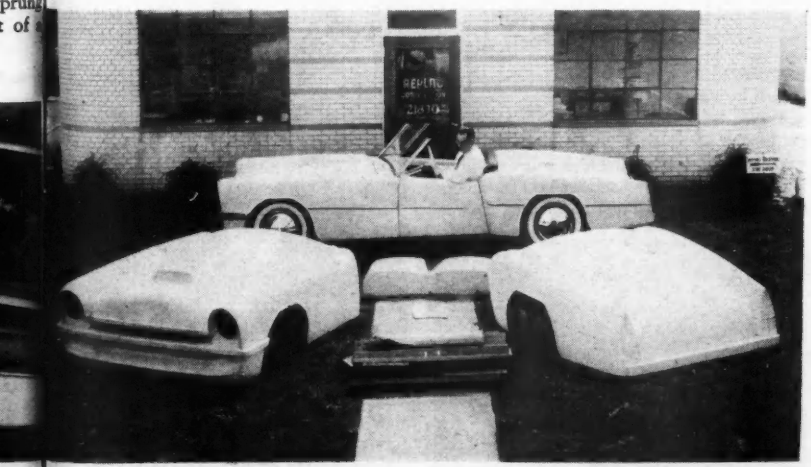
The Maserati is amazing. On short, tight turns, it doesn't lift more than an inch. The bucket seat seems to grab you and hold on. After the 1st lap I settled down and enjoyed (!) the rest of the 6 incredible laps.

Down past the starting line at 90 mph and 5500 rpm . . . a gentle drift thru a right-hand sweeping turn . . . a sharp and tricky dog-leg to the left . . . downshift to 2nd for an uphill right of about 160 degrees . . . slam out of that up a short straight into a tunnel (where the noise is incredible) . . . a shift into 3rd at about 6500 . . . a sweeping left . . . shift to 4th . . . downhill straight . . . downhill turn coming up . . . brake . . . shift . . . engines, tires, everything screaming . . . tach needle touches 7000 . . . flat thru the turn . . . tires screech as we tear toward the starting line again . . .

My reaction, Walt? I think that our 4-year-old Jacqueline put it best when I pulled her from in front of a bright red Fiat Special in Brescia, Italy: "Daddy, buy me one of those!"

Dick van Osten

MARLANDER

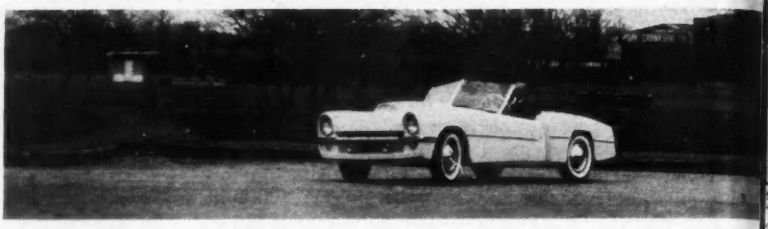


...complete kit consists of front and rear body sections already joined together, assorted metal underbody parts, 2 doors, 2 headlight bezels. Chrome strips supplied

MAIL-ORDER CAR

DON MAC DONALD tells me of a ride he took in a new Fiberglas-kit car, put together by the Replac Corp. of Euclid, Ohio. It's called the Debonnaire and is available from the factory complete with top for about $1800. He found that it drives as well as any early postwar Ford (since the kit can be used on '49-'51 Ford undergear, altho it's designed for mounting on a '41-'48 chassis), minus the top-heaviness associated with these cars in stock form. Further, that it will perform and handle exactly to the extent of the restoration (or modification) on chassis and engine. Even cheaper than the ready-made Debonnaire is a roadster body kit, the Venture, designed by Phil Egan of Glenview, Ill. It sells for only $650, which sum brings you all body parts completely sanded, ready

Driving Around continued



Don MacDonald found that Replac's mail-order car handled as well as '46-'48 Ford minus top-heaviness associated with those cars in stock form. Uses '49-'51 Ford ge

to paint, plus essential chrome trim and windshield posts. If you want to use it on a '49-'51 Ford chassis, you request the optional, wider doors; otherwise, it's the same. You can get fancy as you want with the top, upholstery, instruments, and engine conversions, but can get out for somewhere around $1000.

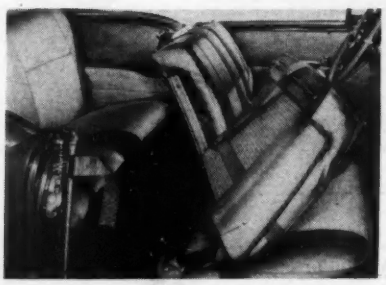
VIBRATIONS

READER WILLIAM M. BROWN of Olean, N. Y., tells me that reading about "Half-Wheeling" (Mar. MT) reminded him of an experience. He says, "A few years back I purchased a steering wheel with built-in spinner, used on some Chevys in '40 and '41, and proceeded to chop away the upper portion. Maybe I gave up too easily but after 2 weeks of grabbing for air and numerous clouts on the leg I was only too glad to revert to a full wheel again. There seemed to be no balance to the wheel . . ."

A FEW MONTHS AGO there was quite a stir locally when a parking lot attendant put the lever of an automatic-transmission car in the wrong slot and backed over the edge of a cliff, killing himself. It was assumed at the time that he thought he was in LO, but instead was in R. With the differences between the quadrants of the various makes, I can see how this can happen. It even betrayed our late Fred Bodley, in a legal drag race: he laid a beautiful strip of rubber, but went the wrong way. Just recently I was parked behind another car at a signal and, as it changed, the car started to roll toward me. In the driver's excitement he stalled the car (saving my car's front end). I then saw him fiddling with the transmission selector and he started off in the right direction. I'd certainly like to see all selectors with the same setup, just as all the old mechanical transmissions were set up with an H-slot shift pattern. Wouldn't you?

Seats Need Strapping, Too

BETWEEN TODAY, when everyone will cheerfully admit that all cars *need* seatbelts, and the day when all cars *have* these life-preservers, there lies a long road. A milepost on that road may well be this invention of Richard Ely, of Fort Lauderdale, Fla. Claims to fame: effective prevention of the "flyswatter" action of 2-door cars' folding front seat (the door-post rivets will be replaced by anchor plates under doorlatch striker plates on future models); installation without major surgery on the car, and consideration of the differences between male and female anatomy (the 2-strap driver's seat harness is Ely's).



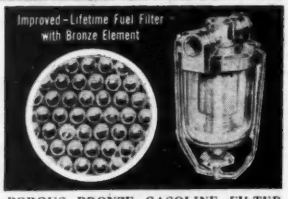
(ADVERTISEMENT)

New Products MAIL MART

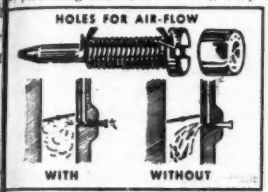
SUPER BROMO FOR ENGINE ACIDS. "Magnaplug" Oil Purifier replaces crankcase drain plug. *Stops* acid wear—extends engine life up to 200,000 miles! Double action: (1) Free-Magnesium unit chemically neutralizes engine acids; (2) Powerful Alnico Magnet draws dangerous steel slivers from oil. Helps new cars stay new by preventing wear. $2.95. Item #1. Ppd.

DETROIT SCOOP! New Car-D-Cal Kit gives your car the brilliant "1956 Tartan Touch." Vibrant 4-color plaids harmonize perfectly, make your car a *stylish stand-out!* Apply in minutes—won't harm finish. Durable as paint, easily removed. Green or red predom. Kit A, 2500 sq. in. for sides, interior, etc., $9.95. Kit B, 5000 sq. in., covers largest top, $19.95. Item #2. Ppd.

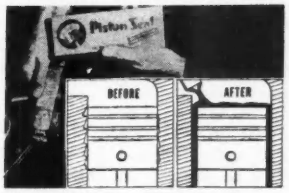
CARBON MONOXIDE inside *your* car? Fix that leaky exhaust system with genuine Holt's Muffler Seal! Repairs noisy, leaky mufflers and split pipes *in less than 10 minutes*. Assures gas-tight joints when installing *new systems*. Simply press soft compound into place—sets like a weld in 1 to 4 hours. Not affected by high temperature. Only $1.69. Item #3. Ppd.



POROUS BRONZE GASOLINE FILTER prevents "gumming-up." *Keeps* carburetor *perfectly* tuned! Improved-Lifetime element "screens-out" all gums, tars, moisture from gasoline, prevents fouling. Better vaporization . . . enjoy extra mileage, more *power* and *pick-up*. No moving parts, lasts forever. Fits all cars—easy to install. Now only $2.95. Item #4. Ppd.

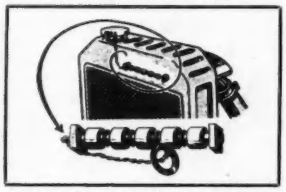


GET TWO MORE MPG! Gane Air-Jet needle replaces stock idling jet, feeds engine proper gas-air mixture. Stops "over-loading" with raw gas, ends carbon build-up. Precision drilled, complete with Filter Cap. Try 10 days—full refund if not amazed. Install in 3 minutes. Specify make of carburetor (2 needed for dual throat). $1.50 each. Item #5. Ppd.

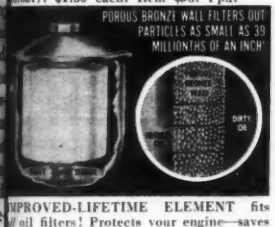


"RING JOB" IN A TUBE. New life, *new power* for your sluggish engine! Simply unscrew spark plugs, squeeze Holt's Piston Seal into holes. Engine heat forms self-expanding seal. Boosts compression, cuts oil-consumption, ends piston slap! Insist on genuine Holt's—insured by Lloyds of London! Can't harm finest engine. Only $4.95. Item #6. Ppd.

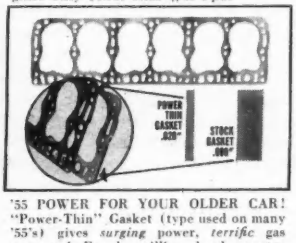
AN OUNCE OF PREVENTION . . . Nat'l Safety Council says: *Unless protected, 50% of public will be seriously injured in traffic accidents during lifetime.* Protect *yourself* and *family* with these Approved Safety Belts. Polished buckle, glossy nylon webbing, 3000-lb. test. Comfortable, adjustable. Easy to install. Blue, maroon, grey, green. $9.95. Item #7. Ppd.



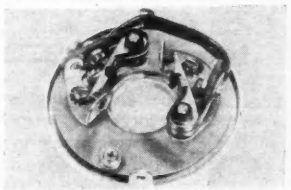
CAR RUNNING HOT? Radiator full of rust? McRay "Protecto-Rod" rids radiator and motor block of scale, corrosion, rust. Copper and zinc discs set up electro-galvanic action—removes old deposits that solvents and flushing can't touch! Restores *full effectiveness* of a clean cooling system. 10-second installation—can't rattle. Only $1.95. Item #8. Ppd.



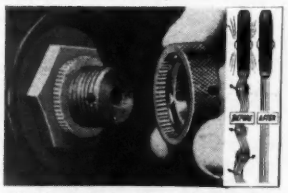
IMPROVED-LIFETIME ELEMENT fits all oil filters! Protects your engine—saves your money. Ends replacement costs *forever*. "Improved-Lifetime" is *strongest, most efficient* built . . . beware of cheap, thin-walled imitations. 10 Year Guarantee. Acid Neutralizer included. "By-Pass" model, $6.95. "Full-Flow," $11.95. (Complete with housing, $12.95. Item #9. Ppd.



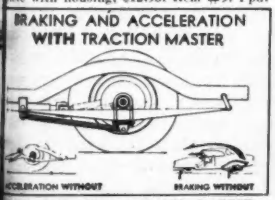
'55 POWER FOR YOUR OLDER CAR! "Power-Thin" Gasket (type used on many '55's) gives *surging* power, *terrific* gas economy! Equals milling head approx. .060". Boosts compression up to 21%! Guaranteed Blow-Out proof. Precision patterned for each make. Avail. *all* cars. Solid Aluminum, $4.95. Solid Copper, $6.75. (V-8 pair, same price). Item #10. Ppd.



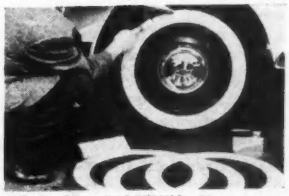
CONVERT TO DUAL IGNITION! Use Dual-Point Breaker Plates for a fatter, hotter spark! Eliminate high-speed miss, reduce point-pitting, plug fouling. Enjoy easier starting, smoother performance, better gas mileage. Easily installed—use with present coil. Chev, Ford, Merc, Linc, $6.50. Ball bearing type for all others, $9.95. Item #11. Ppd.



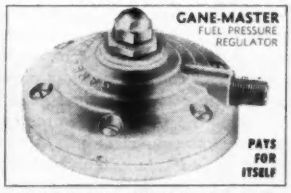
TIRES TREAD THE STRAIGHT & NARROW when you install these amazing new Micro-Lok Spindle Nuts! 62-Point Micrometric head holds front wheels in perfect alignment. Stops "Snake-tracking," assures safe, controlled steering. Tires last 5,000 miles longer—saves bearings, brake linings! Easy to install. For all cars, $2.95 per set. Item #12. Ppd.



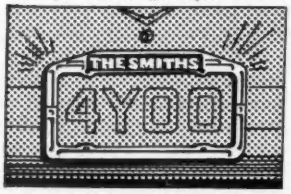
TAKE OFF LIKE A RAPID RABBIT—prevent rear end "bucking." Traction Master stops drive-line "jump"! Axle housing *can't* "rotate." Prevents front end "dive" when stopping. Gives up to 4% faster acceleration, a safer, smoother ride, longer life for tires, shocks, U-joint, and axle. For all cars with leaf rear springs. $39.95 pair. Item #13.



REAL OR "FALSIES"? Change your black tires to gleaming white sidewalls in *minutes*, this *easy, inexpensive* way! Super-strength bonding permanently welds white latex circles to tire walls. Specify wheel size. Thick 100% Pure White Latex, complete with application kit. Each $3.25; set of 4, $9.80; set of 5, $11.95. Item # 14.



DRIVING A "GASOHOLIC"? Gane-Master Fuel Pressure Regulator cuts gas guzzling by up to 25%! Sensitive diaphragm transmits even fuel flow under *all* conditions. Permits ideal fuel-air mixture . . . reduces carbon. Prevents flooding, stalling, vapor lock. Saves frequent carburetor adjustment. Pays for itself quickly. $7.95. Item #15. Ppd.



BE A NAME INSTEAD OF A NUMBER! New Personalized License Frames display your name (or slogan), up to 12 thick diecast chrome letters. Distinctive . . . sets your car off from the rest. Gleaming extra-heavy chrome plate. Easy to mount—fits your State's plates. Specify lettering wanted, $1.65 plus 10¢ per letter. Item #16. Ppd.

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TECHNICAL SERVICE

By the MT RESEARCH STAFF

Note: We are way behind in answering mail sent in to this column, but we are doing our best to catch up with it. Write your question on only one side of the paper to enable us to answer it on the reverse side. Along with it, send a self-addressed, stamped envelope. We can answer only those inquiries limited to one specific question dealing with one particular subject or problem.—Editor.

QUESTION—Will a '52 or '53 Olds 4-barrel carburetor and intake manifold fit my '50 Olds? What would be a reasonable amount to mill off the heads? What about valve train modifications? *Ed DeBolt, Pendleton, Ind.*

ANSWER—A 4-barrel carburetor and manifold is readily adaptable to your car. You can buy the whole kit from your dealer, or from a wrecking yard. If you can, get a set of '53-'54 heads, too. With your early-model rocker-arm setup, you'll get a semi-race cam effect, because the valves are slightly larger in the late model, and the lift is greater in the early model. The later-model heads can be milled .030-inch to produce just under 9 to 1 compression ratio. This setup, with dual exhausts, should give you performance almost equal to the newest Olds.

QUESTION—Is it possible to adapt any other Ford transmission to a Model A engine? I am building a small sports car around a reworked A engine and would like to install a sturdier gearbox. *Alexander Dyndink Sr., Southington, Conn.*

ANSWER—You can use either the A, B, or C transmission with your engine. However, there is no real objection to the use of the A gearbox. It is reasonably rugged, and should withstand anything you can put through it with the souped A engine.

QUESTION—I am building a sports car that will be powered by 2 Chevrolet V8 engines. My problem is finding a drive train that will take the tremendous torque. How will a Cadillac transmission with a Lincoln rear end work? *Don Michael, Victoria, B.C.*

ANSWER—The '37-'38 Cadillac gearbox is a wise choice. It's a close-range unit that's ideal for sports car use. By all means, use it—and the Lincoln rear end, too.

QUESTION—I own a '54 Chevrolet with Powerglide which seems to have a "bug" in it. When it reaches approximately 85 mph it hesitates, then after it's held open for a short time, it will go as if someone were pushing it. Stronger valve springs didn't help, and cleaning the hydraulic lifters did nothing for it. *Russell L. Atchison, Kane, Ill.*

ANSWER—This fault is not peculiar to Chevrolets, nor is it necessarily caused by a faulty valve train. Fouled plugs may be the trouble. A cold plug will build up deposits in a surprisingly short time and will misfire until cleared either by a flatout run or by cleaning. In some cases, a weak fuel pump can cause this occurrence. Under load, as in acceleration, the carburetor briefly runs out of fuel, then refills as speed levels off; as it refills, the engine gets another charge of fuel and takes off again. Check your plugs for correct heat range, and check the fuel pump for output capacity.

QUESTION—I have a '53 Mercury with Merc-O-Matic; I can't find a way to make the car start easily or idle smoothly. I have had it tuned and the compression checked but have found nothing wrong. What would help? *Rex Thompson, Urbana, Ill.*

ANSWER—A long-range diagnosis is a pretty hit-and-miss proposition. Without making an instrument check, we can only suggest that faulty sparkplugs would be the common cause, for bad carburetion and ignition system failure should have come to light during the tuneup. If everything else is in good shape, the only conclusion is that a valve is not opening, due to a broken tappet or worn cam lobe. This can only be checked by pulling the heads.

QUESTION—Would installing 8-BA Ford heads on an 8-CM Mercury engine have an effect on the compression ratio? Both models are '49. If '53 Merc heads will fit a '49 block, will the C.R. be 7.3 to 1 or the standard '49 ratio? *Charles C. Evans, Leaksville, N.C.*

ANSWER—Heads that produce 7.3 to 1 on a '53 Merc will give approximately 6.5 to 1 on a '49 Ford, because the Merc has a quarter-inch more stroke than the Ford. By reversing the process (installing Ford heads on the Merc) a gain in C.R. is obtained. If you mill the Ford heads .050, you

Ideal Fuel Economy

HARDLY A MONTH goes by when we do not hear about "developments," usually in carburetion, or possibly pills in the gas tank, for which the sponsors claim fantastically increased economy in any car. Such claims are often accompanied by glib talk of greatly increased thermal efficiencies.

We are indebted to the Ethyl Corporation's Detroit research laboratories for down-to-earth data which clearly show that the "200-mile-per-gallon" carburetor is close to an impossibility, at least with internal combustion engines as we know them.

Obviously, power delivered to the flywheel supplies the push to overcome chassis friction (or losses) and wind resistance. Ethyl used a current Oldsmobile equipped with a 10 to 1 compression ratio General Motors Research engine to obtain their data. This engine is a 1st cousin, design-wise, to the Olds V8, except it's beefed-up internally, and is sold only as a piece of research apparatus, complete with a set of interchangeable cylinder heads ranging from 5 to 1 up to 12.5 to 1 compression ratio.

First step was to determine flywheel power required to drive the car. Next, 100 per cent thermal efficiency was assumed, and ideal fuel consumption on a level road at the various speeds was calculated. On this basis, 1 horsepower-hour corresponds to 0.0212 gallons of gasoline. Since 20 mph (see below) required 5.5 brake horsepower, the car would use 5.5 x 0.0212 or 0.1166 gallons per hour, which is the equivalent of 171.5 miles per gallon.

Since Ethyl's Olds with its special engine is a cut above anything available on the general market today, let's compare its performance with that of the ideal car:

Vehicle Speed Miles per Hour	BHP at Flywheel Required	Fuel Economy Ethyl Olds	Miles per Gal. "Ideal" Car	Brake Thermal Efficiency of Ethyl Olds, %
20	5.5	27.4	171.5	16.0
30	8.8	26.3	160.9	16.3
40	14.2	24.8	132.6	18.7
50	22.5	22.9	105.1	21.8
60	34.8	20.6	81.4	25.6
70	52.5	17.8	62.9	28.3
80	76.6	14.2	49.2	28.8
90	106.4	11.8	39.9	29.6
100	140.0	9.5	33.7	28.2

Engineers in general consider that 30 per cent thermal efficiency is the maximum obtainable in internal combustion engines of the foreseeable future, and this only under certain ideal conditions. Even Ethyl's special Olds didn't achieve this mark anywhere in the speed range. So when you see someone claiming miracles, think twice before you pull your wallet out of your pocket.

ve a C.R. of 7.3 to 1 on the '49 Ford.

QUESTION—How can I wire the overdrive nit on my '53 Plymouth so I can kick own from overdrive to 3rd gear without omping on the throttle? I would like to ount a toggle switch control with a green ight to show when the unit is ready to be ngaged. *J. A. Robinson Jr., Washington, D.C.*

NSWER—Just bypass the kickdown switch ow on your car and run the wires to your oggle switch. The green light can be run om the solenoid control on the overdrive nit; bypassing this unit will turn on the ight instead of operating the overdrive.

UESTION—Where can I get spare parts nd equipment for a Model MB 1944 Willys eep? Are Fiberglas bodies produced for he Jeep? Where can I get parts for souping he engine? *SFC Don McGreevey.*

NSWER—A Willys dealer is your best ource for spare parts. We know of no Fierglas bodies being made for the Jeep hassis. Speed and power equipment is avail-ble from Eddie Edmunds, Inc., 2042 Stoner ve., W. Los Angeles, Calif.

UESTION—Many of the articles giving nformation on installing oversized valves dvise the use of 70 degree tapered reamers o enlarge the valve pockets. Where can I et a reamer? *Peter Prieto, Phoenix, Ariz.*

NSWER—If your local auto parts or ma-hine parts houses don't carry these reamers, rite to the Continental Tool Works Div., x-Cell-O Corp., Detroit 32, Mich.

UESTION—I am thinking about buying a ew Buick, but I wonder if the new Dyna-ow will handle the pulling of a 3000-4000 ound trailer. Would the Special have nough power, or should I buy a Super? I nderstand the Century has a little too much ower for the body. *C. L. Price, San Fran-sco, Calif.*

NSWER—A new Buick should be a good hoice for pulling a trailer because of the ransmission changes for '55, which produce ore delivered torque. You have little choice n pulling-power axle ratios (with Dyna-ow) between the Special and the Century nd Super (the latter models share common atios). There is such a thing as too much eight for a chassis or too much power for chassis, but this does not apply to any of ur standard cars. The Century would be en better for your purpose than the Spe-al or the Super because of its favored eight-to-power ratio.

UESTION—For many years I have anned to build my dream engine—a 6-ylinder, 400 cu. in. job with a 7-main bear-g crank. The head will be a twin-overhead-am with 4 valves per cylinder. The only bstacle is in finding a block for this de-gn. The G.M.C. block fits all requirements cept size. Where can I purchase a suitable lock? *R. J. Wouda, USAF.*

NSWER—There's a strong possibility that ou might find a suitable block for your ream engine by consulting the manufactur-s of marine engines. Kermath and Hall-cott firms would be a good starting point.

QUESTION—I have a difference of opinion with a friend. He says that two different engines, of say 100 and 175 bhp, would have the same torque reading at 2400 rpm, assuming identical transmissions, rear ends and tires were used. Is this true? *Jim Carmichael, Inglewood, Calif.*

ANSWER—This *could* be true. And the lower-rated engine could reach peak torque at 2400 rpm while the higher-rated engine *may not* have reached peak torque. It could work out this way under other circumstances as well. Horsepower and torque are interdependent and there are infinite variations in the way they interact.

QUESTION—Could you tell me what late-model car brake system I could convert for use on a 1931 Model A Ford? *Anthony Szewko, Bayonne, N.J.*

ANSWER—You can use any Ford setup from '39 thru '48. You will have to use spacer rings (available from speed equipment houses) on the front spindles or else use later model spindles. If you use the newer spindles you must get a special steering arm (also available from speed equipment outlets). The rear brakes are no problem—the backing plates fit the same hubs. If you wish you can adopt the '54 or '55 pendulum pedal and use a dash-mounted master cylinder.

QUESTION—I have a 1948 Buick Super and plan to mill the head. How high should I go on compression? Which would be best with this setup, dual carburetors or a 4-barrel carb? Will a '52 Roadmaster manifold fit my Buick? Would the economy in the change to dual distributor points and coils be justified? *William Galloway, Berkley, Mich.*

ANSWER—The head on your car can be milled .125-inch for a compression ratio of 7.3 to 1. This is maximum. The Roadmaster manifold will not fit. Your best bet would be to purchase a dual manifold from some speed shop. The dual point ignition will help to raise peak power in most instances. If you do much high speed driving the investment is a good one.

QUESTION—I just ordered a new Packard Clipper and would appreciate any advice you can give me on break-in. I would also like to know how much gain economy-wise I could expect from installing duals, headers and Mallory ignition. *Sgt. B. Stone, APO 55, N.Y.*

ANSWER—Follow the manufacturer's directions on break-in—Packard knows its new engine, and its likes and dislikes. Duals and headers will probably give you about 2 miles per gallon better mileage on the road and about half of that in town.

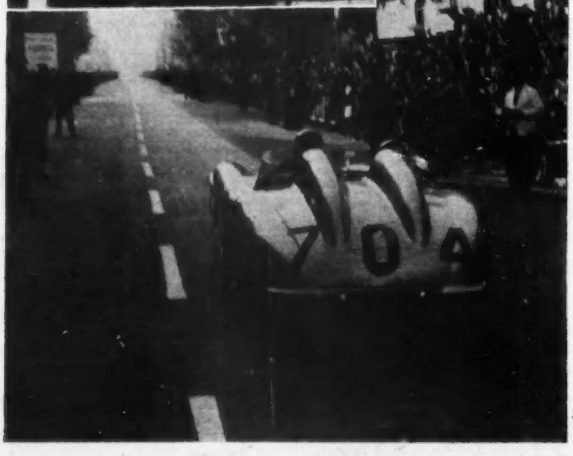
QUESTION—How can I lower the front end of my 1953 Ford 2-door without affecting the wheel alignment or spring travel? Is a kit for such lowering available? *Wallace Rohwer, Dixon, Calif.*

ANSWER—Valley Custom Shop, Burbank, Calif. makes a lowering kit to fit your car. However, the mechanical disadvantages of front end lowering far outweigh the slight esthetic advantages. The best advice, taken from bitter experience is: Don't do it! After all, a car is meant to be driven and enjoyed, and this makes it hard.

Motor Mélange

by Al Kidd

CSCC, SCSCC, SCCA, SCCCC—even MT proofreaders get them confused. The **California Sports Car Club** should have gotten the credit for successful staging of the Palm Springs race. Our apologies to its hard working (and driving) members . . . Oldsmobile (with 74 cars in the circuit) claims overall leadership in the **NASCAR Grand National** box score, but Chrysler (17 cars running) has the most wins. Only other makes that have won an event are Hudson and Chevrolet . . . Just 10 hours and 7 minutes after he left Brescia in a Mercedes-Benz 300-SLR, Stirling Moss was back again and winner of the **XXII Mille Miglia** at a record 98.5 mph. World Champion Fangio (whose 300-SLR wasn't running up to par) settled for 2nd in the racing sports class. But Herr Neubauer's day had just begun. Later when the standard sports class arrived at Brescia he found Mercedes 1st (John Fitch), 2nd, and 3rd. Still later he watched a similar formation of 180s sweep the diesel class . . . **The Model A Restorers Club** (71 Lexington Road, West Hartford, Conn.), organized slightly over 2 years ago with a letter from founder William Hall in MT, now numbers over 600 international members . . . An obstacle-drag race was the recent contribution to **the sport in Jordan.** H. M. King Hussein sponsored the event; opened festivities by cruising thru the course in his '54 Buick Skylark; closed them by storming thru in his Mercedes 300-S for fastest time of the day . . . The U.S. **Mobilgas Economy Run** isn't the only one. At least 2 others have recently been completed: Capetown to Johannesburg and Penang to Singapore. British cars dominated both . . . The inevitable has happened—Volkswagenites have banded together into the **VW Auto Club of U.S.** (Box 13, Fordham Station, New York 58). First edition of its journal, *The VW Autoist*, is as compactly interesting to fanciers as the car it represents.



Mille Miglia winners Jenkinson, Moss, and Mercedes 300-SLR

EDITORS ASSOCIATED

The pen may be mightier than t sword but Carle Conway III and Geo Cheney don't think that it's mightier t the automobile. Faced with a **graduat thesis at M.I.T.,** the pair decided to press themselves with wrench and to rather than pencil and paper. The result their thesis is the trim competition spo car pictured above. It is powered with 80-horsepower motorcycle engine usi chain drive. The large-diameter, thi walled tubular frame and light Fiberg body give the car a dry weight of o 800 pounds. *Magna cum laude.*

what's coming up?

june

18-19, CSCC Race, Los Angeles.
19, SCCA Hillclimb, Mt. Equinox, Vt.
19, AAA 100-Mile Champ Race, Langhorne, P

july

4, SCCA Race, Beverly, Mass.
9-10, SCCA Race, Torrey Pines, Calif.
21-23, SCCA Giants' Despair Hillclimb and Races, Wilkes-Barre, Pa.

august

20, AAA 100-Mile Champ Race, Springfield,
21, SCCA Race, Akron, Ohio.
28, AAA 100-Mile Champ Race, Milwaukee,

september

5, NASCAR 500-Mile Race, Darlington, S.C.
5, SCCA Race, Kansas City, Kan.
17, SCCA Race, Watkins Glen, N.Y.

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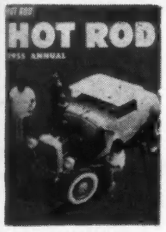

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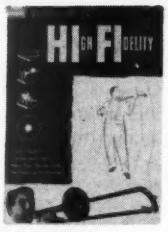

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do it yourself

Installing a Radio

by Al Kidd

AFTER WATCHING TV half the night it's sometimes a relief to hop into your car, turn on the radio, and just listen—*if* you have a radio to turn on. If you don't, why not install one yourself? It's not half the job that you probably think it is.

The operation is simplified by the fact that almost all cars have a space behind the dash for a radio and speaker (and holes already drilled in the dash). All you have to do—literally—is bolt the radio and speaker in place. Still further simplification is provided by a unit like Motorola's new 5M-Volumatic. This radio is intended for do-it-yourself fans and the kit includes all necessities along with the basic radio and speaker. The hookup is a snap for even the butter-fingered.

A variety of ready-drilled holes makes it easy to bolt mounting brackets to the front of the radio housing so that they will protrude thru the holes already in your dashboard. Once in position, 2 hex-nuts secure the unit to the dash. Another bracket fastens from the rear of the housing to the top of the dash. A custom faceplate then screws into the same brackets which hold the radio itself in place.

The speaker can be mounted behind the dash (there's a place for it there) or, if you like, in the rear on the package shelf. Remember, tho, if you intend to mount the speaker very far from the radio unit you'll have to splice in some wire to make the speaker leads long enough.

The next step is to mount the antenna (which must be purchased extra). Just pick your spot (front or rear), drill a hole, and fasten it in place. Be careful not to drill thru anything but body metal, and be certain, too, that the antenna will be upright when finally in place.

All that remains is to make the electrical connections (power, ground, antenna, and speaker) and add noise suppression condensers. These connections may vary slightly from car to car but an enclosed instruction sheet (for individual cars) clearly outlines the procedure for a quick, safe job.

Photos by Marshall Marker

Motorola unit, ready for installatio has front mounting brackets in pla

With some cars, you must remove glo box door to position radio behind da

With unit bolted in place, a custom fa plate screws into same mounting brack

continued from page 23

The Steam Car Could Come Back

The Stanley used one gallon of engine oil per 1000 miles, the Delling one gallon in 2000 miles, and the Doble one gallon in 4000 miles. The condition of the engine makes no difference, as the oil is pumped drop by drop into the steam going to the engine. The crankcase being in a unit with the rear axle, the crankshaft and all bearings are lubricated by the axle oil, which cannot be contaminated or diluted by the cylinders, as they are not connected with the crankcase.

Maintenance expense is much less than with a gas car, as there are so few parts to wear, and even these last indefinitely due to the slow speed of the engine and the use of ball or roller bearings on the crankshaft, connecting rods and cross-head glides. There need be only 2 cylinders, 2 crankshaft bearings, and one gear besides the axle gear. This one gear replaces the entire transmission, clutch, and driveshaft system of the gas car. The valves never need grinding, as they are merely 2 small sliding pistons; there is no clearance to adjust, and there are no hydraulic tappets to cause trouble.

Under the hood there is a simple device to turn the burner motor on or off, according to the steam pressure on a diaphragm. Every time the burner is turned on, either automatically or with the dash switch, a sparkplug, operated by a vibrator-type coil, produces a stream of sparks for a short time, igniting the oil spray. Another device, an expansion tube disposed horizontally at the normal water level of the boiler and connected to it at one end, expands when filled with steam; this closes a pressure-seat valve at the other end, and, when filled with water, contracts and opens the valve. This is a bypass valve; when open, it allows the water coming from the feed pump to bypass the boiler and return to the tank. When closed, it forces the water to go into the boiler through a check valve. A similar tube, located at a lower level, shuts off the burner motor in case it fills with steam due to a failure of the water feed. These automatics are very simple and rugged, and cause practically no trouble.

The care required by a steam car is simple, such as tightening and replacing packing, cleaning valves and possibly reaming them (like faucets) and blowing down the boiler. Thus it can be taken care of by the owner, at great savings over the care required by a gas car, especially one with an automatic transmission. Also, the simplicity of the steam car means that comparatively few parts would have to be stocked by dealers.

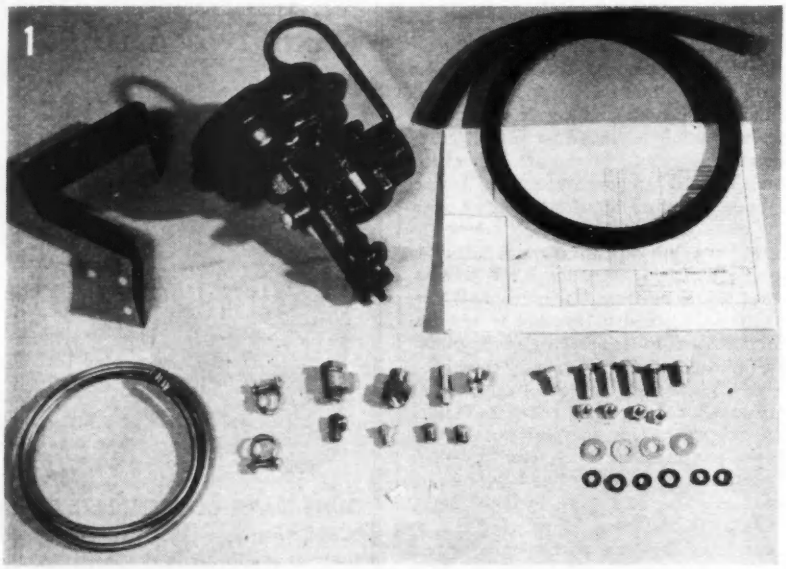
There was actually a possibility of a disastrous boiler explosion in the type of boiler most frequently used in the old cars, including (*Continued on page 65*)

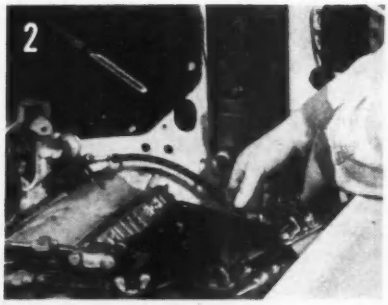
do it yourself

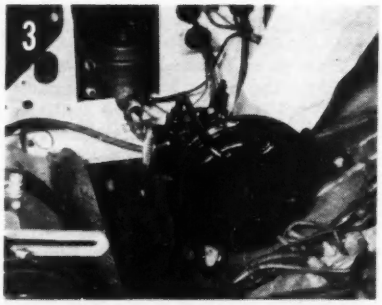
by Don MacDonald

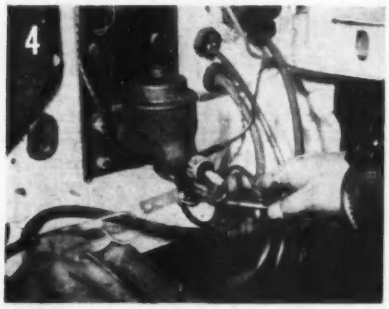
Power Those Brakes

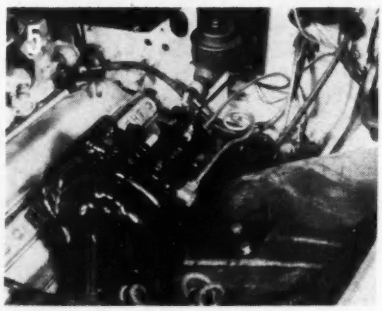
Photos by Stan Rosol

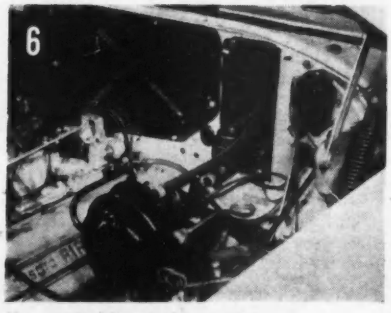


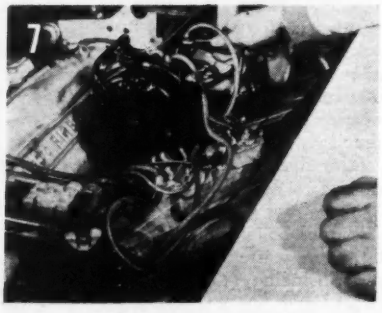












WE WERE AMAZED, to put it mild ly, when we found that less than 1 per cent of low-price-field buyers had spec ified the power brake option for their ne cars so far this year. Even in the mediu price bracket, more than 75 per cent o all buyers have passed up their chance fo factory installation of this accessory.

Granted, a new car with or witho power assists is a shock to anyone's chec book, and we can't blame you for eco omizing wherever possible. The catc comes after the 1st few months, whe you realize that an austerity car and prid of ownership seldom go hand in hand. It a little late to do anything practical abou power windows or steering, but you ca do something about those brakes.

Several well-known companies (Mo Par, Midland and Bendix) market on national scale inexpensive (about $40) power conversion kits that can be installe on any late-model car with a minimum o tools in 2 or 3 hours of spare time. W chose the Midland HyPower unit for ou DeSoto (severely stripped when purchase new for the recent Daytona Speed Trials).

First step in the installation procedur is to lay out the tools needed and the ki components (photo **1**). Many mor fittings than necessary are usually pro vided, and a blueprint for your car is in cluded, so don't panic. Bend the mountin bracket to fit the contour of the splas pan (**2**) and, so that the HyPower uni will be vertical, about 15 inches from th firewall. Locate and drill the necessar holes for the bracket in the splash pa using an $^{11}/_{32}$-inch bit. Mount the uni to the bracket first, then install bot (**3**) on the splash pan. Disconnect mas ter brake line at the bottom of the cylin der (**4**) and the other end at the junctio box. Install copper tubing as shown i (**5**), making sure that it is curled fo stress relief. (Substitute flex line if you amateur standing is unquestioned.) Fit tings provided require a flare-type joint Install the vacuum hose between the uni and the intake manifold, and the complet ed job looks like (**6**). Hook hose up ou of the way on a convenient firewall fitting Brakes must be bled before driving th car. Method shown in (**7**) involves ap paratus now common to most garage called a "bleeder tank," with hoses hooke to fittings provided on the HyPower uni Lacking this equipment, however, it is per fectly satisfactory to use old method o pumping brake pedal.

We used the well-equipped garage o Cranbrook School in Bloomfield Hill Mich., for photography purposes, and Mid land technician Mitchell Buczynski di most of the work.

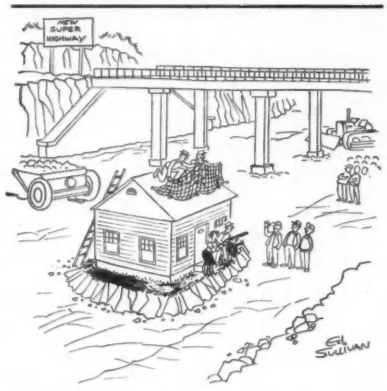
continued from page 63

the Stanley. This fire-tube type consisted of a drum-shaped tank, about 23 inches in diameter and 14 inches in height. Thru this tank, from the bottom to the top head, passed 750 tubes about ½-inch in diameter, to carry the hot gases from the burner underneath and heat the water in the drum, which was about ⅔-full and contained 8 gallons.

The boiler explosions which used to occur many years ago in ships and factories were due to the use of this boiler. However, the type has not been used in cars for many years. Instead, the water-tube type is used. Here the water is contained not in a large tank, but in many small tubes, or a single long, coiled tube. If a tube breaks, nothing results but a steam leak until the pressure runs down. To cause an explosion, a large number of tubes would have to rupture at once. But this is as impossible as pulling a chain and making more than one link break.

The next fear is that the boiler will burn out or spring leaks, and require costly repairs. Here again there was formerly a reason. The superheater coils through which the steam passed on its way to the engine were located under the boiler, directly over the fire, and contained no water. Modern superheaters do not burn out, because they are protected from the most intense heat of the burner by some of the boiler tubes containing water. In addition, they are made of heat-resisting alloys, like nichrome, and never burn out.

The fire-tube boiler would in time spring leaks because the upper ends of the tubes were merely expanded into the heads; the lower ends were welded in some cases, but not in all. Sediment collecting in the boiler could not be removed,



"They're too friendly this morning, Fred. Watch out for a trick."

causing the lower ends to overheat, burn out and leak. It was then necessary to retube the boiler, a very expensive job.

Modern water-tube boilers do not have this trouble, since all joints exposed to the fire are welded. Condensers can now make a tankful of water last 1000 miles. The Stanley used no condenser at all before 1915, and had to take on water every 50 miles, so the amount of scale and sediment was tremendous. If only distilled water is added—it can be done when the chassis is lubricated—all deposit will be prevented, and it will not even be necessary to clean the tubes.

Even the fear of being stranded on a long trip by the very unlikely bursting of a boiler tube was eliminated in the Doble and Gearless, and probably in others. The boiler and burner of the Gearless was made in 2 halves, and the half containing the burst tube could be cut out of operation by turning a few valves. The driver could then proceed to a garage, where a spare tube section could be easily installed. On the Doble the defective section could be very easily disconnected from the top and bottom headers, which were then capped. The owner himself could replace the section when convenient.

Another false idea is that a steam car requires frequent cleaning of the burner and burner nozzle, and removal of soot from the boiler tubes. In the old vaporizing burner, the vaporizing of fuel on its way to the nozzle left a gummy residue, which would clog the nozzle. In the modern atomizing burner, the fuel is not vaporized, but is sprayed from the nozzle in liquid form, producing no gum.

Formerly there was good reason for

the objection that steaming-up took too long, and that the burner was temperamental and required careful handling when starting from cold.

Modern steam cars have for many years used a motor-driven blower which blows a spray of finely atomized oil into the combustion chamber, where a sparkplug ignites it. All that remains of this trouble and delay is to turn the burner switch on, wait 2 minutes, then drive off.

How to bring about the steam car's return? Let us consider high fidelity. Just a few years ago it was of interest only to a few radio experts and hobbyists. The largest radio manufacturers were solemnly conducting tests and pronouncing that the public did not like accurate reproduction of sound. The hobbyists continued to build systems with expensive parts never found in assembled radios.

As they enthusiastically demonstrated them to friends, the superior quality was apparent. The public finally woke up to it, with the result that high fidelity is now big business.

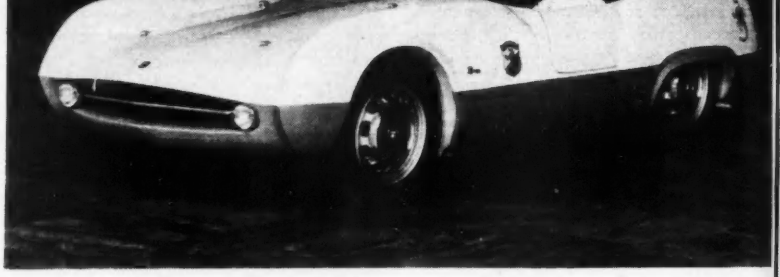
The building of steam cars by automobile hobbyists will create a gradually spreading interest. Perhaps some accessory maker will produce a steam plant for installation in some car which could be bought cheaply second-hand, particularly if in bad mechanical condition.

The increasing number of such conversions, and the spreading interest they create, could easily result in some manufacturer bringing out a steam car.

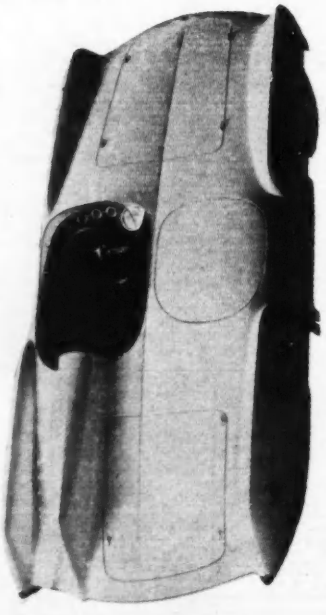
—Homer E. Hogue

ASYMMETRIC ABARTH

Slice it down the middle and the halves won't match, but lopsidedness is beauty in this car



Rear fenderline and flared wheel openings on new Abarth show American influence. Top view of Abarth emphasizes asymmetry. Note metal cover over passenger seat



by F. H. Baer

WHEN CARLO ABARTH decided to produce a competition sports car he shuffled all of his learning (from managing a successful racing stable to avant-garde body designing) and drew out his ace —the beautiful new Abarth 207-A, a model aimed directly at the American market.

No matter how you look at it (literally) the most interesting feature is the body styling. An asymmetric shape results from the driver's side of the car being raised an inch, and from the offset fin and trunk, and the different-sized cockpits. Even the offside door can be had only as optional equipment.

The variable-size fuel tank is another interesting accessory. Holding 20, 35, or 50 liters (5.3, 9.2, or 13.2 U.S. gallons), optional tanks vary to allow sufficient fuel and minimum weight for any specific distance. How's that for custom design?

The 1148-pound Abarth uses a Fiat chassis and 1100 cc ohv engine with dual Weber carburetors and 9 to 1 compression ratio. It turns up 66 horsepower. No acceleration figures are available, altho top speed is reported to be 116 mph. Guesses place the selling price at about $4000.

***Manager of Leading Auto Supply Store Reveals—**

5 Reasons Why *IMPROVED-LIFETIME* Outsells All Other Porous Bronze Oil Filter Elements!

**In past months, you've read* our *side of the Improved-Lifetime story. Now, read what a leading auto-supply retailer (name on request) says about Porous Bronze Oil Filters:*
My competitors said I was crazy when I decided to stock bronze filters. "Sure, it's a break for your customers," the story went, "but you'll cut yourself out of those profitable *repeat sales* on regular filter packs."
"Maybe so," I told them, "but goodwill means *everything* in my business. Make a friend, and you've made a *steady* customer." Here are just a few reasons why my customers are so enthusiastic about porous bronze filters!

ENGINES LAST UP TO 150,000 MILES!
Install a good bronze filter in your car and you won't need an overhaul until you've had the car so long you're tired of it. You'll save a potful of money each year, too, because you're *through* buying filter packs. What's more, after years of use, a *good* bronze filter does a better job of guarding your engine than a *new* filter pack!
Right now you're paying about $2.00 every two or three months for a "throw-away" filter pack. Maybe you don't mind throwing away the money, but you're *also* throwing away 50,000 to 100,000 miles of your engine's potential life!

ELIMINATES ENGINE WEAR
This *isn't* just "talk." I've had an Improved-Lifetime filter in my *own car* for over 60,000 miles. The engine is as smooth and powerful as when I installed the filter. It *still* doesn't burn a drop of oil between changes. I expect it'll last *another* 60,000 miles, easily.
How *can* an engine last so long? Because Improved-Lifetime eliminates *both* major causes of engine wear: (A) grinding abrasive action; (B) the eating-away of precision parts by strong corrosive acids. Improved-Lifetime's *double-strength* walls—made up of millions of tiny bronze balls—"screen-out" abrasive particles as small as 39 millionths of an inch (anything smaller cannot harm your engine). Improved-Lifetime's "Magnesium Moisture Barrier" *neutralizes* the sulphuric acids produced by combustion. Yes, this new "Miracle" filter *will* keep your new engine new—even past the 100,000 mile mark. And, it guards older engines against *further* wear.

"Take a look at the Improved-Lifetime filters I'm holding. Then look at the five other brands sitting on the counter . . . they're the five reasons my customers won't settle for anything less than an Improved-Lifetime."

WHICH FILTER SHOULD YOU BUY?
If you've been reading the various filter ads you're probably confused, indifferent or both. Which bronze filter *is* the best? I didn't know either, so I wrote away for them all. I wanted to *see* them, side-by-side . . . compare them, feature by feature, *before* deciding which filter I wanted for my customers. Believe me, *there's a difference!* (See unretouched photo.) Just look at them and you'll see what I mean! Some have *less than half* the filtering area of Improved-Lifetime. The others? . . . some are good, some just fair. Not one, in my opinion, is as good as the Improved-Lifetime models I'm holding. Now, I'd like to tell you why:

LARGEST FILTERING AREA
The *larger* the area, the more *efficient* the filter. Improved-Lifetime averages up to 43% more filtering area. It's a *heavy-duty* filter. Improved-Lifetime is self-sealing on centerpost. This means that if you buy a "By-Pass" model you can use it on any car you ever own with a "By Pass" filter system. (Same with the "Full-Flow" model.) There are no tricky gasket seals to make you blow *your* gasket when you install it. It's *one* "Lifetime" filter that *will* last a lifetime.

"BY PASS" & "FULL FLOW" MODELS
Improved-Lifetime is made in *two models:* the larger (in my right hand) is the "Full-Flow"; the smaller, the "By-Pass." A "Full-Flow" filter *has* to be larger because it filters the *full-flow* of oil from the pump. A "By-Pass" filter filters only 10-15% of the oil at a given time, the remainder *by-passing* direct to the engine. Naturally, the larger filter costs more to manufacture. Buy a Full-Flow filter at a By-Pass price, and you're going to get a "By-Pass Size" filter. This is like hiring a boy to do a man's job.

***BENEFIT* NOW FROM THIS DISCOVERY!**
Think of it! The car you're now driving *can* last up to 150,000 miles *without* costly repairs or overhauls. Benefit *now* from a bronze oil filter. And benefit from the best of them all—the Improved-Lifetime!

SEE YOUR DEALER NOW!
Improved-Lifetime Filters are sold by progressive *automotive parts stores and service stations everywhere. If your local dealer has not yet ordered, mail coupon below!*

IMPROVED-LIFETIME

Trade Mark

Porous Bronze Oil Filter

Not Just Claims...But Honest Facts:

1. First Cost = final cost. No more "Packs" to buy.
2. Transfer to next car with same type oil system.
3. Removes all grit; can't soak up detergents.
4. Complete with Acid Neutralizer added.
5. Greatest wall strength; most filtering area.
6. No "tricky" gasket seals. (Factory sealed.)
7. 5 minutes to install; Right way is only way.
8. Occasional kerosene rinse cleans like new.
9. Prices clearly stated for each make of car.
10. Originators of "Lifetime" Brand Oil Filters.
11. All models available for immediate delivery.
12. Double your money back guarantee.

NEW!
Porous-Bronze Gasoline Filter
Keeps carburetor in perfect tune! Better mileage, more power, pick-up. Fits all cars. **Only $2.95**

ONLY $2.00
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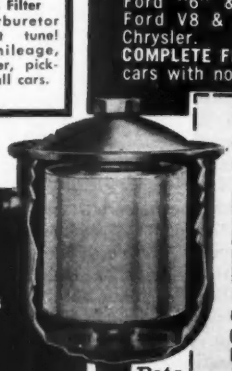
COMPLETE FILTER UNIT: For cars with no filter case.

MILLIONS OF FUSED BRONZE SPHERES . . . filter out abrasive particles as small as 39 millionths of an inch!

30 DAY FREE TRIAL! DOUBLE YOUR MONEY BACK GUARANTEE!
Try, Test IMPROVED - LIFETIME 30 days! If not 100% satisfied, return for full refund. This amazing filter is guaranteed for 10 years . . . far stronger than other designs or DOUBLE YOUR MONEY BACK!

DEALERS! JOBBERS!
Now you can fill the booming demand with just 2 sizes for all cars & light trucks (Instead of 20 or 30). Write or wire today!



Pats. Pending © 1955

MAIL THIS COUPON TODAY!

ENGINE PRODUCTS MFG. CO., Dept. 331
5801 E. Beverly Blvd., Los Angeles 22, Calif.

- ☐ I enclose $2. Will pay balance plus small C.O.D. charge on delivery.
- ☐ I enclose $_____ in full. Ship prepaid.
- ☐ RUSH "By-Pass" Filter Element at $6.95
- ☐ RUSH "Full-Flow" Large Element at $11.95
- ☐ RUSH Complete Filter Unit at $12.95
- ☐ RUSH Complete Gasoline Filter at $2.95.

I understand that if I am not completely satisfied I may return item for full refund within 30 days.

CAR YEAR_____ MAKE_____ MODEL_____
NAME_____
ADDRESS_____
CITY_____ ZONE____ STATE_____

(ADVERTISEMENT)

Here's How You Can Keep Your Engine Young and Powerful . . . *As Long as You Want!*

You can get top power and performance from your engine almost indefinitely and the way is so simple you will be amazed no one thought of it before!

EVER since the automobile replaced the horse and buggy, engineers have been at work trying to produce an engine that will last as long as the car. The problem seemed an impossible one until attacked from a new angle. Engineers and mechanics have come to realize that the engine's greatest enemies are corrosive compounds that tear down the motor. What are these corrosive agents? They include sulfuric acid, hydrogen bromide, carbonic acid and other metal-eaters which are formed in the engine as the result of fuel combustion. These acids and water are an inescapable part of the combustion process and cannot be eliminated. While these agents remain in the engine, your car is slowly but surely destroying itself with every mile you drive.

John Bentley, famous racing driver and magazine editor, commented on the harmful effects of acid in a recent article in his magazine. Bentley said: "It is a demonstrable fact that the greatest enemy of your engine—the most damaging single influence constantly at work in shortening its life and lowering its efficiency—is acid. This acid does not come from the lubricating oil, but from the gasoline burned. In other words, it is an inevitable product of combustion."

Auto expert Bentley went on to explain there are some six pounds of sulfur—enough to produce five gallons of strong sulfuric acid—in every 1,000 gallons of gasoline. We might say the average motorist uses 1,000 gallons of gasoline, probably more, in his car every year. That means he is pouring five gallons of metal-eating acid into his engine every 12 months. In addition, leaded gasolines contain appreciable quantities of bromine and chlorine which are turned into harmful hydrogen bromide and hydrogen chloride during combustion. Theoretically, the products of combustion in your car's engine are enough to form a pint of acid during each day's long run.

New alkaline oils have some effect against the damaging acid action, but only while the oil is new. Furthermore, in the upper cylinder region where there is very little oil circulation, the alkaline reserves are completely used up in a short time. With water condensing in relatively large amounts in this area, the upper cylinder region makes a perfect acid "still." To combat this acid formation requires a stronger and more effective agent than alkaline oils can supply.

> We can only laugh at the attempts of those who are trying to imitate and "improve" the Magna-Power acid neutralizer. Some of these "improvements," such as a magnet, were tried out years ago and discarded when it was proven the magnet did not appreciably reduce engine wear—most abrasives in the oil system are non-magnetic, anyway. We have always considered a magnet an advertising gimmick that increases cost without adding value. Magna-Power does not have to use this type of advertising gimmick.
>
> Fifteen years of laboratory and road tests have also shown that not all magnesium alloys work with the same degree of effectiveness. In fact, some alloys quickly coat with a neutral film and are then worthless. Magna-Power has been proven the most effective acid neutralizing alloy NOW IN USE. And testing still proves that the acid neutralizer is most effective when placed in the crankcase—where acids and water tend to settle.

TESTS BEGIN IN 1940

It did not take an engineer to diagnose the fact that metal-eating acids will quickly destroy an auto engine. But an engineer and the situation just happened to come together at the right time to solve the problem of how to rid the engine of the harmful agents. The engineer was Winthrop A. Johns. Win, as he is called, was doing experimental work on diesel aircraft engines when he became interested in the engine-wear problem. Back in 1940, Mr. Johns was carrying out high temperature test runs on an experimental diesel aircraft engine to check piston ring and bearing wear. With the Prestone coolant at 250 degrees F., he expected some breakdown in the lubricating oil, but in this he was agreeably surprised. The oil stood up under the extreme conditions and the diesel went on humming.

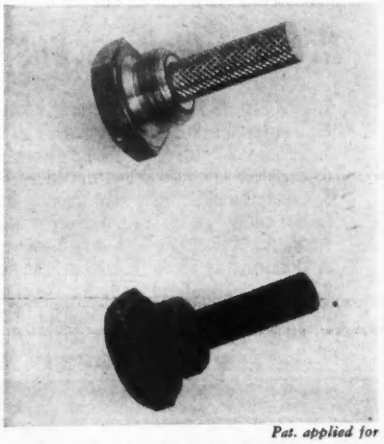
Mr. Johns could not explain the strange events, but decided to look into the unusual occurrence. He already knew, of course, all about corrosive effects on internal combustion engines and realized he might be working towards the answer to the corrosive acids problem. In reviewing his diesel experiments, the Dunellen, N.J., engineer came to realize that with crankcase temperature above the dew-point of the blow-by gases, little or no water could condense. Without the presence of water there was less corrosion and yet, obviously, condensed water in itself has no power to harm engine metals. Therefore, he concluded, the condensed water coupled with the blow-by acid gases must be doing the damage.

Experimenting in his own laboratory and using his own car, a 1940 Ford V8, as a test vehicle, Mr. Johns soon established a plan of action. An alkaline substance was needed in the engine to neutralize the harmful effect of the acids. The principle was simple. Acids would attack the alkaline substance and be "neutralized" or destroyed. Early experiments to neutralize engine acids were

AN AMAZING OFFER AND GUARANTEE BY WINTHROP A. JOHNS

Mr. Winthrop A. Johns, mechanical engineer (M.I.T.) and member of the Society of Automotive Engineers, who has discovered a method of combatting engine acids by means of a magnesium alloy neutralizing device.

Before and After—125,000 Miles



Pat. applied for

Before and after series demonstrates acid action on a Magna-Power plug taken from a Studebaker Six after 125,000 miles. Corroded plug was taken from one of a fleet of hard-driven dairy trucks used in a Magna-Power road test. Test helped prove Magna-Power slows oil deterioration during hot summer months when synthetic and natural oils tend to break down more rapidly.

conducted using caustic potash or potassium hydroxide. Although this neutralizing agent successfully performed its intended job of dealing with the destructive acids, it was rejected because it was found to be too harsh and dangerous to handle safely.

Mr. Johns next chose a magnesium alloy as a neutralizing agent. The result was the Magna-Power Acid Neutralizer. In its final form, the neutralizer plug was a piece of magnesium alloy—actually a chemical in solid form—attached to the crankcase drain plug. Why was the chemical magnesium chosen for the job? An independent report made by a Canadian governmental research team shows the wisdom of the choice.

CANADIAN RESEARCH TEAMS HAVE FOUND THAT:

"Adding certain metals or chemicals to automobile oil will greatly extend its useful life.

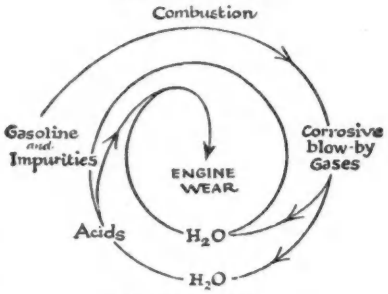
"To the motorist this means that he may be able to drive for 7,000 miles or more without changing oil, instead of the usual 1,000 or 2,000 miles.

"Several years of laboratory work has shown that the metals Lithium, Potassium, Sodium and Magnesium or some of their salts or oxides slow down the oxidation that destroys and contaminates the motor oil. Good results were shown on two test vehicles."

They then suggested ... "that a piece of one of the metals could be placed in direct contact with the engine oil by attaching it to the car's oil drain plug ..."

In other words, the basic idea behind Magna-Power's extraordinary performance is that corrosive acids attack some metals more readily than others. A magnesium-aluminum alloy was found to be highly susceptible to attack by corrosive acids. Immediately the question arose, could the combination of alkaline oils and a magnesium alloy lead to excess alkalinity? The answer is definitely "No!" As a matter of fact, in all experimental work done with magnesium alloys no case of increased alkalinity has ever been noted.

BREAKING THE CIRCLE



The Vicious Circle

Acids normally formed through combustion are not only strong, but very thirsty. Sulfur trioxide, for example, will hold water until boiling at over 500 degrees F. Therefore, the acids cannot be removed by heat, filtration or any of the normal processes. To make the situation more serious, the formation of acid rapidly becomes self-accelerating. The acids draw water that draws more acids that draw more water. The easiest way to stop this damaging circle is to destroy the acid through the use of a magnesium alloy. When the acid is destroyed by the alloy, water is no longer held and without water the acids cannot grow. Thus, through the use of a magnesium alloy plug, the vicious circle is interrupted.

Before we discuss the damage done to your car by corrosive acids, let's examine the role that friction—your engine's scapegoat—plays in wearing down your automobile's life. To make it short and sweet, as any engineer can tell you, friction has little harmful effect on your automobile. The problem of friction-wear in present day automobiles has been licked through the great engineering advances made during the past 50 years.

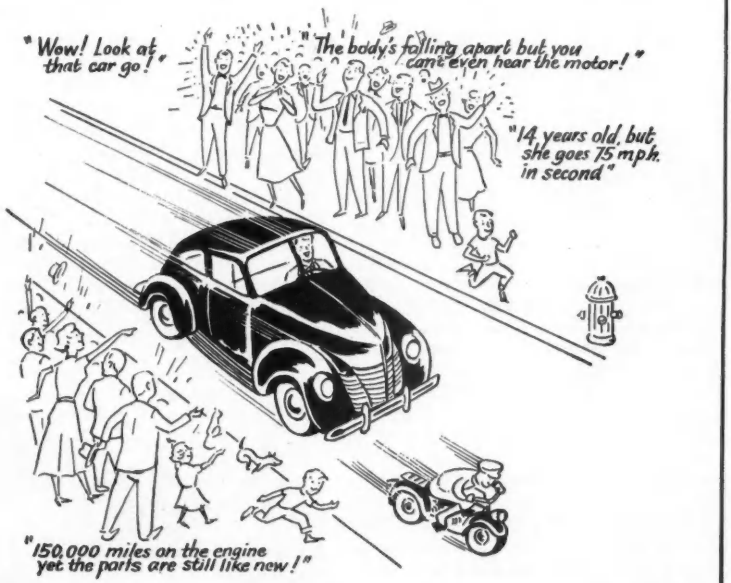
One important point often overlooked in analyzing the results of wear on an engine is that the products of corrosion are themselves abrasives. For example, one end product of acid attack on iron is iron oxide, more widely known as rust. This rust, sold commercially as jewelers rouge, is formed in a raw state in your automobile engine, on the very surface you are trying to protect.

Here is the beginning of another accelerating circle in the auto engine. Aluminum forms aluminum sulphates, oxides and carbonates, all of which form in tiny hard crystals with sharp edges. When these crystals break away from the surface they scratch and tear both the aluminum and the iron of the cylinder wall, setting both the metal and the abrasive free in the oil film causing further abrasive action. Thus in a normal engine it is impossible to separate the effects of friction or abrasive wear and those of acid corrosion since the one contributes to the other. When acids are eliminated, these secondary abrasives are also eliminated and another damaging cycle is interrupted.

Win Johns and the original test car.

HERE ARE THE RESULTS

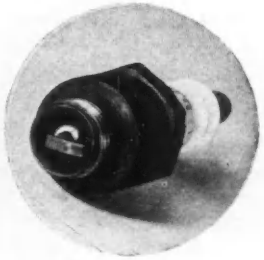
How would you like to drive a car 14 years—more than 150,000 miles—without an overhaul, and then find the engine gives you more pick-up, more gas mileage and greater efficiency than when it was new? That is the case with Win Johns



As one Magna-Power fan wrote: I used to change the oil in my '46 Chevy every 1,500 miles. Between changes I would add two quarts of oil. That was before I invested $2.95 in a Magna-Power acid neutralizer. Following the installation of Magna-Power, I was able to run my Chevy 7,000 miles—yes, 7,000 miles—before changing the oil. That means Magna-Power paid for itself three times over in that one instance. But that wasn't the end of my savings! During the 7,000 miles, I only had to add four quarts of oil. That meant an additional savings of four quarts of oil, considering the car's previous oil consumption. I tell all my friends to send $2.95 to Johns Mfg. Co., Middlesex, N.J., for their Magna-Power Plug! More mileage between oil changes and less oil consumption mean dollars in my pocket.

and his original test vehicle, a 1940 Ford V8. Here is a description of the test Ford taken from the May, 1954, issue of AUTO AGE. ". . . the engine is absolutely remarkable. It idles down to 125 rpm as smoothly and evenly as a turbine and in almost complete silence. Stopwatch tests show that it will accelerate from 10 to 50 mph in 16 secs. and can cover a standing quarter mile in 21 secs. At 70 mph (on the speedometer) there is plenty of throttle left and an impression of liveliness. The Ford . . . was dismantled at 117,000 miles, when bore wear was found to average .00095 inches, or *less than one thousandth of an inch*. The reader may draw his own conclusions."

Another interesting point brought out in the magazine article was the condition of one set of spark plugs used in the test vehicle. These spark plugs ran more than 61,000 miles—or two and one half times around the world. Four points were noticeable in a quick examination of the plugs, which, by the way, are still in functioning condition. First, these plugs, purchased in the early post war years, were not of a popular brand name. Secondly, the porcelain insulation on three of the plugs was almost entirely gone. The insulation was so far burned away that it was hard to understand how the plug could fire at all without constantly shorting across the interior. Thirdly, although the electrodes were worn rather thin, the spark plugs still performed evenly and without misfire. Finally, the plugs examined were almost entirely free from traces of carbon and an excellent mixture adjustment was indicated.



Actual photo of one of the spark plugs after 61,810 miles. Note good condition of electrodes.

Here is further proof of the effectiveness of Magna-Power. Magnesium plugs were installed on the engines of one half of a 30-vehicle milk delivery fleet back in 1949. The other 15 trucks were used as comparative control vehicles. The tests, which ran over a three-year period, covered more than two million miles of arduous stop-and-start service. What were the results of the fleet test? According to Mr. Edward L. Hark, garage superintendent of the Farmers and Consumers Dairy, Morristown, N.J., engine wear *was reduced by 82 per cent* on the trucks equipped with the magnesium plug. Additional benefits included better oil and gas mileage and longer spark plug life.

In inspecting two of the actual Studebaker engines used in the above test, certain factors were noticeable. One engine, an R15, had been fitted with the magnesium plug; the other, an M16, had not and therefore provided a valuable means of comparison. The R15 engine broke a piston on June 15, 1952, after covering 125,000 miles. Unfortunately, the truck was driven eight miles with a loose connecting rod which ruptured one of the cylinder walls. Nevertheless, bore wear on the five measurable cylinders averaged .006 inches, giving a negligible wear of .00049 inches per 10,000 miles. The M16 "control" engine, running without magnesium protection for a distance of only 45,000 miles, showed bore wear of .015 inches. This is equivalent to a wear factor of .00331 inches per 10,000 miles or *6.8 times more rapid* than that of the protected engine.

A further point of interest, according to Mr. Hark, is that while the R15 was run on premium grade lubricating oils, the control engine had the benefit of using only heavy duty alkaline detergent oil for added protection. In spite of this, the recorded rate of wear was 680 per cent more rapid than that of the engine with the magnesium acid neutralizer plug. Interestingly enough, the chart showing the effect of this plug on drain oil mineral acid indicates roughly 700 per cent more mineral (corrosive) acid formation in engines without the magnesium.

ENGINES WITHOUT MAGNA-POWER

Total Mileage	Wear (inches)	Wear Rate (micro-inches per 10,000 miles)
*45,052	.01492	3310
45,700	.01114	2440
30,886	.01192	3860
45,918	.01344	2830

ENGINES WITH MAGNA-POWER

*125,482	.00606	485
65,321	.00284	437
25,712	.00218	848
45,117	.00333	740

(*These engines were taken from the same truck used by the same driver on the same run.)

Conducted under normal operating conditions over a three-year period, this test proves the tremendous reduction in wear made possible by the use of the magnesium alloy acid neutralizer.

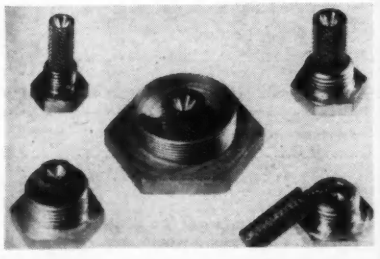
A more recent independent test is highly indicative of the acid neutralizer's effectiveness in reducing engine varnish and sludge formation. J. A. Milteer of Quitman, Ga., removed the magnesium plug from his 1953 Ford 6 at a regular oil change on May 11th, 1954. Shell X-100 #20W was put into the engine. On June 13th, after driving 2,657 miles without adding oil, Mr. Milteer changed his oil and reinstalled the Magna-Power. Again Shell X-100 #20 was used. A sample of the oil drained from the Ford 6 was immediately forwarded to the Southern Analytical Laboratory in Jacksonville, Fla. Meanwhile, the engine was used until July 10th to cover 2,700 miles. At this time the oil was drained and another sample sent to Southern.

The most significant part of the report issued by Southern is the great difference in sludge and resin in the Magna-Power oil. There was approximately 1700% more sludge in the oil that had not been affected by the magnesium alloy plug than the oil used with Magna-Power. Here are the actual figures as presented by the Southern Analytical Laboratory in their reports #36280 and #36333:

	With Magna-Power	Without Magna-Power
Sludge:	0.3%	5%
Resins and Gum:	None	0.5%
Sugars (reducing substances):	Trace	Present

FOR TOP PERFORMANCE WITH MINIMUM WEAR

Road tests covering millions of miles have given us the ideal combination for top engine performance with a minimum of wear. This combination is the use of Magna-Power with a good oil filter and alkaline oils. As has been explained, Magna-Power neutralizes the acid found in the engine system. Without acid the formation of sludge, varnish and resin is drastically reduced. Furthermore, earlier deposits of these engine-damaging compounds are attacked by Magna-Power's electrolytic action and slowly destroyed. In an automobile equipped with an oil filter unit, any small quantity of acid-formed compounds remaining in the oil system are easily absorbed by the filter. These damaging compounds will be removed from the oil system when the filter cartridge is changed. Meanwhile, with less waste being carried in the oil, extra miles will be added to the normal life of the filter. It has been discovered that *filter cartridge life is often tripled* due to the decreased amounts of sludge and resins formed in the engine. As for the use of "heavy-duty" oils in conjunction with Magna-Power, they result in a terrific reduction of wear in the engine. Tests on engines using detergent alkaline oils show wear reduction of ¼ to ⅓ in passenger cars. Magna-Power gives consistent figures of 1/10th the former wear in the same type service. It would seem that Magna-Power used with the new oils would result in even greater reductions in wear.



Shown above are five of the many types of Magna-Power acid neutralizer plugs. These plugs are designed to fit every American-made automobile, popular foreign makes and leading sports cars. There is one to fit your car.

INDEX TO ADVERTISERS

Sell 'N' Swap

Requirements are: copy limit of 25 words (not including name and address), first come, first served; we reserve the right to edit where necessary; we are not responsible for accuracy of description, although we will reject any misleading statements. This service is not open to commercial advertisers. No ads will be accepted if payment is not made in advance and such communications will not be acknowledged. Only one CAR may be listed in any single Sell 'N' Swap insertion. This limitation will not apply to parts, catalogs, etc. The charge is four dollars per insertion. If your car is unusual and you have a photo of it suitable for publication, you may submit it with your ad. If we decide to print it there's no cost to you for the cut, but we'll have to decide which photos to use. Sorry, no photos can be returned.—Editor

SELL

'54 JAGUAR XK-120 cpe. 2100 miles. Never wrecked or raced. Light green, wire wheels. Sacrifice at $3400. Reason for selling, bought an airplane. W. H. Beckwith, 600-A Commercial National Bank Building, Peoria 2, Ill.

COLLECTORS of classic and antique automobiles. What is a classic? Send $1 today for booklet. The climax of 5 yrs. work by owner and collector. Paul's, Box 354, Los Alamitos, Calif.

'41 GRAHAM Hollywood engine, supercharged with exhaust header. 500 miles since complete rebuild. Exc. cond. $175. Turner's Garage, 12002 E. Centralia Rd., Artesia, Calif.

'21 MARMON 7-pass., tour. model 34. Exc. mech. cond., new Firestone tires, tubes, paint. Photo on request. $1200 f.o.b. Max Palm III, 9450 Cunningham Rd., Cincinnati, Ohio.

'53 LATE CUNNINGHAM VIGNALE C-3 cpe., immaculate thruout. Would consider Nash-Healey hardtop or Thunderbird as part payment. G. E. Sheppard, Oakland, Calif. Twinoaks 3-5396.

'47 LINCOLN CONTINENTAL conv. New cond. thruout. New tires, uph., conv. top, paint. All rechromed. Will accept trade. Full price is $2500. Fairly new V-12 engine. J. O. Williamson, P.O. Box 414, Carlsbad, Calif. SA 2-3154.

'39 STUDEBAKER conv. tour. sed. (stock), only 17 built. Exc. cond., low mileage. Worth over

$1000, will sacrifice for $750 cash. Al Benson, 3 McCormich St., San Francisco, Calif.

RACE CAR. 4-Port Riley Sprint Car with good trailer and spare parts. Driven by many famous race drivers. Owned last by Crash Waller. Complete only $500. W. Jay Johnson, Rt. 2, Nashville Rd., Hopkinsville, Ky.

CLASSIC CAR SALES CATALOGS: Packard, Chrysler, Lincoln, Cadillac, Pierce-Arrow, orphan and foreign cars; minimum $5 each. Also MoTor (N.Y.) Annual numbers; details for large stamped addressed envelope. A. E. Twohy, 400 N. Kenmore, Los Angeles, Calif.

'30 DUESENBERG J Murphy 4-dr. conv. Good condition, exc. mechanically. $1700 or good Cord and cash takes it. Only legitimate inquiries, please. Pics. 25c. D. Conner, 2114 Glenwood, Fort Wayne, Ind.

'34 PACKARD 12 limousine, very good cond. fully equipped, orig. finish, good rubber. Best offer over $300. C. P. Boeck, Box 666, Springfield, Ore.

'48 LINCOLN CONTINENTAL, beautifully restored, new tires, Lifeguard tubes, light blue with custom uphols. Engine o'hauled 500 miles ago. Priced for quick sale, $1895. Lt. Col. T. M. Love, 2126 Pleasant Pl., Colorado Springs, Col.

371 GMC BLOWER, Navarro, blower manifold, Cad. 4-throat carb., complete blower drive, ready to run, for Ford V8 flathead, $300. R. Bergstrom, 41 21st St., Hermosa Beach, Calif.

'40 LINCOLN CONTINENTAL conv., beat-up but perfect for restoring. Sacrifice at $425, or might trade for licensed light airplane. J. Donohoe, 3309 University, Des Moines, Iowa.

'36 AUBURN 8 115-hp engine, complete with starter, generator, trans., free wheeling, etc. Needs fan and water pump. Run only 30 hrs. since o'haul. F. Zehringer, 34 S. New York Ave., Atlantic City, N.J.

'33 CHRYSLER 4-dr. sed., 2 sidemounts, solid body, good tires, uphols., and engine, leather trunk included. Send 25c for pics. $195. Terms. B. Kessler, P.O. Box 54 Ridgecrest, Calif.

'41 GRAHAM HOLLYWOOD. Cord-bodies. New complete engine, fittings, clutch, brakes, battery; suspension rebuilt R and h, good body and tires. $395. Free delivery 1500 miles. A. Erickson, Box 190, Missoula, Mont.

FORD MODEL T new, never used, kerosene headlamp, perf. cond. 2 Model T spotlights, electric, complete with bulb. Perfect condition. Make offer. R. Slotten, 414 N. Garfield, Lombard, Ill.

'30 FRANKLIN sed., model 147, mechanically good, 4-speed trans., 6 wire wheels, alum. body. Body and uphols. weatherbeaten, $125. H. Bailey, 36 Laskie St., San Francisco.

'33 BUICK ohv 8 station wagon, 1 of a kind, hand-rubbed maroon paint, leather and plush uphols., no dents, easily restored to perf. cond. $600. A. Rice, 740 E. Rose Lane, Phoenix, Ariz.

HOOD latches new Model A type, chrome plated, unlimited supply. $1 each ppd. J. Harrigan, 4340 Douglas, Des Moines, Iowa.

'39 BMW 4-place conv., engine rebuilt in Germany Dec. '54. Chrome knock-off wheels, 3 carbs., 100-hp engine. 4-speed box, new top, paint, tires, $1800. Capt. H. Hewson, 1139 Merry St., Augusta, Ga.

PARTS FOR '36, '37, '38, '39 Cadillacs and La-Salles, new grilles and fenders with and without wells. Also over 300 auto and gun magazines, '46 to '54. D. Leonard, 519 Kling St., Akron, Ohio, Phone PO 2-5272.

'33 CADILLAC V8 7-pass. limousine. Ex-Canadian government car. 4 new tires and tubes, r & h, tele-

phone. Needs little restoring. Nearest to $2000. Reynard, 2465 Oregon St., Long Beach, Calif.

'31 FRANKLIN PIRATE Phaeton chassis, complete with hood, cowl, front fenders, wire wheels. Engine runs. '30 small 6 chassis, wood wheels. All or parts. E. Eaton, Box 91, Star Rt., Orange, Calif.

'29 PACKARD 8 sed., exc. orig. cond., perf. running, good tires. $175. E. Eaton, Box 91, Star Rt., Orange, Calif.

'54 PORSCHE Super 1500 cpe., silver blue, r & h, windshield washer, reclining seat. Under 12,000 miles. Never in competition, never modified. Exc. cond. $3500. H. Blacker, 1245 Pear St., Boulder, Colo.

BMW Type 328, immaculate, orig. to last bolt, finest specimen in country. Bought in Germany from orig. owner; 40,200 actual miles. First $2200 cash. R. Horne, 17 Lansing St., Madison, Wis.

'47 LINCOLN CONTINENTAL conv., black with ww's. Completely orig. with exception of top. $1400. Col. C. E. Caple, Laredo Air Force Base, Laredo, Texas.

TIRES, some new, some used, for 17, 18, 19, 20, 21 in. wheels, most sizes, 1 each of 30 x 5, 30 x 5.25, 33 x 4. D. Travis, 317 Karen Way, Mill Valley, Calif.

'26 MODEL T 2-dr. sed., Body, fenders and mech. cond. very good. Tires good, uphols fair; has starter. $250. J. Breyer, Prudenville, Mich.

'31 CADILLAC V8 cpe. with rumble seat, very good condition thruout. 45,000 orig. miles. Sidemounts, wire wheels. For details write D. Ketner, 2216 No. Prairie Ave., Joliet, Ill.

'40 SUPERCHARGED GRAHAM, o'hauled by garage in '52. Very good shape except for 2nd gear. Best offer over $140. Extra blower $25. R. Butts, 4621 Webster St., Dayton, Ohio.

'47 LINCOLN 4-dr. sed., green, excellent body, interior, radio, o.d., ww's, orig. thruout, V-12 engine, teacher's auto, used daily. K. Dawson, P.O. Box 52, Oakland, Calif.

'36 PACKARD V-12 phaeton. Wire wheels, 4 new tires. Engine and body exc. Will deliver within 500

miles of Boston. $1600. W. W. Sargent, 33 Monument St., Concord Mass.

'29 DODGE Senior 6 sport sed., rare model, marclassic. 4-speed trans, wire wheels, etc. Paint, engine, chrome, interior like new. Best offer over $200. Rocha's Garage, 807 Brock Ave., New Bedford, Mass.

'37 SUPERCHARGED CORD sed., exc. orig. cond. Over $900 in spare parts, engine, trans., clutch, U-joints, axles, wheels, etc. $2950 or swap for '53 Jaguar modified cpe. C. Reidhaar, 510 6th St., Lewiston, Ida.

'26 DODGE Bros. 4-dr. sed., 117-in. wb., Boyce Moto-Meter, orig. paint, good cond., 1 owner, $375 or best offer. J. Napier, 630 Ave. G, Fort Madison, Iowa.

'39 PACKARD 12 sports cpe., 185 hp, 135-in. whb., exc., rare classic. Bought with intentions of

restoring, some work done, well worth restoring. $150. E. Rice, 358 Rock Island Rd., Quincy, Mass.

MANUALS, owner's and service manuals for Model 90 Overland Light 4, also '19 price list and illustr. sales manual for Series R Hupmobile. Make offer. A/2C R. R. Fors, 1911-2 AACS Det., Lincoln AFB, Neb.

'41 BUICK 4-dr. conv. seds. (2). These rare cars have always been kept in A-1 condition thruout. Cars are complete and original. Best offer. R. Gilmore, 2529 Kemper Lane, Cincinnati, Ohio.

'32 FORD ROADSTER, channeled, hot rod, with o.d., full-house Ford engine just rebuilt, exc. cond. thruout, loads of chrome. Will trade, what have you? G. Spillman, Jamesport, Mo.

'31 FORD roadster, new top, rebuilt engine, hydraulic brakes, telescopic shocks, electric fuel pump, downdraft carb., sealed beams. Fabulous condition. Best offer over $450. H. Wolff, 7522 Elmore Lane, Washington 14 D.C.

'47 LINCOLN CONTINENTAL hardtop, '50 Cadillac conversion o.d. trans., dual exhausts. Good cond. thruout. $2250. W. Bryan, Jr., 1605 Westheimer, Houston, Tex.

'37 CHRYSLER Airflow sed. Engine o'hauled 2000 miles ago. New head, o.d. Orig. paint, 64,250 original miles. Perf. cond. $500 or swap for light aircraft. Ray Anderson's Garage, 5454 W. Forest Home Ave., Milwaukee, Wis.

'34 DUESENBERG J, body #486 built by Derham of Philadelphia; 5-pass., 4-dr. sed., hard top; purchased from orig. owner. Cond. good, mechanically very good. Price is right at $1950. L. Steene, 207 N. Poplar Dr., Falls Church, Va.

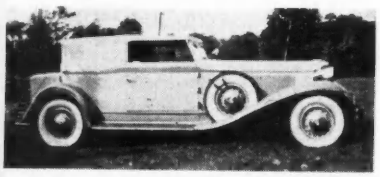
PRIVATE automotive literature collection. 500,000 orig., illustr. sales catalogs, brochures, etc. Minimum order 5. 5/$1, 12/$2, 35/$5. Send check to R. Marontate, Jr., 14169 Prevost Ave., Detroit, Mich. VErmont 7-0095. Sent return mail, postage prepaid.

MODEL A FORD adjustable valve lifter, $16 for set of 8. $5 allowance for your old set. J. O'Brien, 5127 Troost Ave., Kansas City, Mo.

'37 CORD BEVERLY completely restored to showroom cond. 2-tone lacquer, matching Naug. interior, mechanically perf. Urgently need cash, $1200 or nearest offer. R. Stutley, 893 Kincaid St., Inglewood, Calif. ORchard 1-0221.

'38 LINCOLN-ZEPHYR conv. sed., 59-A engine, heater, orig. radio, nosed, decked, good all-around shape, $200 or best offer, also fair V-12 engine, $15. J. Dohner, 2903 Liberty Pkwy., Baltimore 22, Md.

'31 CHRYSLER IMPERIAL custom conv. victoria by Waterhouse. 145 in. wheelbase, 6 wire wheels,



trunk. Mileage 43,000, mechanically exc. Good in all other respects. $1600. G. Biehn, Hockessin, Del.

CADILLAC 16-cyl. ohv engines (2) in perf. running condition. Mounted on stationary stands. Will sacrifice for $175 each. Turner's Garage, 12002 E. Centralia Rd., Artesia, Calif. TOrrey 5-3720.

'41 HOLLYWOOD GRAHAM, Mercury engine .030 over, ¾ cam, duals, otherwise stock. Beautiful dash, new chrome, green metallic paint. $800 or trade for '40-'41 Continental cpe. M. Bartholomew, 21097 San Miguel Ave., Castro Valley, Calif.

'28 PACKARD 6-cyl. rdstr., Model 526, motor o'hauled, new uphols. and top, good rubber, lacquered by experts. General cond. exc., go anywhere, $700. C. Paul, 827 Union Rd., Ebenezer, N.Y.

'23 BUICK 6-cyl. sport rdst., wire wheels, 4 new tires. Orig. leather uphols., like new. Mechanically perfect. 51,000 actual miles. 1-owner car. $650. C. Paul, 827 Union Rd., Ebenezer, N.Y.

FORD T PARTS, wide variety, many type items available. Free mimeographed listing available. Also many mechanical parts for Ford A's, other older models, advise needs. E. Hemmings, 1036 Hampshire, Quincy, Ill.

'17 STUDEBAKER 6 7-pass. touring, running cond., good paint, no rust, needs better tires, best offer over $800. J. LeRoy Forsythe, Millheim, Pa.

'29 MODEL 135 FRANKLIN 4-dr. sed., 6 wire wheels, 8 tires, runs good, body good outside, interior bad, good mechanical cond. No pix, best offer. W. Wilder, Star Rt. 2, Box 38, Willits, Calif.

'47 LINCOLN CONTINENTAL black conv., good running cond. New Goodyear Double Eagle nylon ww's, Lifeguard tubes, tan top. All orig. Best offer over $1800. R. Somers, Pennsville-Auburn Rd., Penns Grove, N.J. Phone: PG 53-R-11.

'41 CONTINENTAL hardtop, red, good cond., ww's, blue plaid uphols., rebuilt '47 V8 engine, 120 hp. Driven 7000 miles, 16.5 mpg. $675. Bill Fay, 514 Butler St., Marietta, Ohio.

'37 PACKARD 12-cyl. formal sed. in exc., orig. cond., new tires, o'hauled completely, new ignition, new brakes, new clutch. $750. G. Trombetta, 329 N. Milwaukee, Milwaukee, Wis.

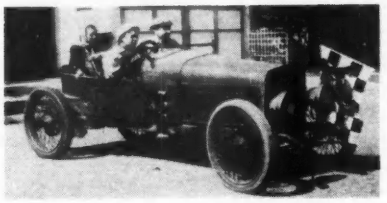
'33 ROLLS-ROYCE P-II town sed. Right-hand drive, English Hooper body, exc. and orig. thruout, new tires. Was asking $1800, consider less for immediate sale. J. McNutt, 4222 Woodedge Blvd., Akron, Ohio.

'41 PACKARD 160 conv. cpe. Distinctive transportation. Gray with tan top, ww's, r & h, rust free chrome and clean, orig. yellow leather interior. Best offer. C. P. Fishbaugh, 12785 Cedar Rd., Cleveland, Ohio.

'41 CHRYSLER Thunderbolt, only 6 built, true hardtop conv. Orig. cost $20,000. Photo 25c. W. J. Pettit, 14722 Eastwood Ave., Lawndale, Calif.

'32 CORD L-29 conv. cpe. Sidemounts, new top, wheel cover, tires. New paint on trunk and rear. Can go anywhere. $1250. Wm. R. Stockley, Denton, Md.

'12 HISPANO SUIZA Alphonso XIII model. 3-seat boat-tail body. Tires are not good. Stored in garage



for 23 yrs. $2500. Art Twohy, 400 N. Kenmore Ave., Los Angeles, Calif.

'52 HILLMAN MINX 4-dr., 14,000 miles. Only $695. Exc. cond., 35 mpg. Would take Crosley Sports or Golf Buggy in trade. L. F. Kahl, 120 E. Stephenson St., Freeport, Ill.

'30 CORD classic, 4-dr. conv. phaeton, front-wheel drive. New paint and chrome wire wheels. Twin spot, fog lights, and seat covers. $1000. Chas. Dolnics, 665 Washington St., Gary, Ind.

BUELL AIR HORNS, 36 in., 18 in., and 15 in., sporless. 2 air tanks, compressor, hoses, gauge controls, tire inflating hose. Cost $240 wholesale. Complete $175. Lester Burmeister, Mansfield *News-Herald*, Box 312, Mansfield, Wis.

AUBURN PARTS for '31 auto, 8-98 model, wood wheels, tires, rims, engine whole or part. Cooper, P.O. Box 223, Fort Monroe, Va.

'41 LINCOLN CONTINENTAL. Ohv Cadillac conversion, 15-in. wheels, good chrome, dual underseat heaters, poor uph. $1350 or ? John F. Pember, 508 W. Milwaukee St., Janesville, Wis.

'36 CORD Weschester. Converted to rear drive. DeSoto 6 overdrive operating. Body complete, sound interior restored. $500. Principal parts for rebuilding and reconversion, $200. T. Edward Hedges, Indiana Univ., Bloomington, Ind.

'41 LINCOLN CONTINENTAL hardtop. Rebuilt chassis, new black lacquer. 5 good ww's. New interior. 59A engine. $1100. R. Botts, 5240 Eagle, Long Beach, Calif. Long Beach 347-142.

'37 CORD supercharged sportsman's conv. cpe. New tires, paint, and leather uph. Exc. top. Drive anywhere. $850 or trade for boat. M. Walker, Box 546, Olney, Ill.

'37 CORD supercharged sed., exc. interior. Body and engine in good shape. New distributor and coil. $500 or trade for boat. N. Walker, Box 546, Olney, Ill.

'48 LINCOLN CONTINENTAL hardtop. Late '51 Olds engine. Car is perfect in every detail; can't be told from new. $2450. N. Turnquist, 733 Perry St., Dubuque, Iowa.

'38 MG 2-liter, 6-cyl. Black sed., exc. leather. Engine perfect, new tires, wire wheels, sun roof. $1700. Wm. Klein, Jr., Elizabethtown, Pa.

WANTED

'28-'29 FORD Model A phaeton, with sound body and top. Must be suitable for restoring and located in Midwest area. P. Hammond, 1913 Tecumseh, Lansing, Mich.

'31, '32 or '33 AUBURN conv. sed. or conv. cpe. Must be in unrestored cond. Carl Swansen, P.O. Box 114, Spanaway, Wash.

ALLARD J2 or J2X. Cycle fendered with body and chassis in fine orig. cond. No requirements as to engine cond. Send full details first communication. H. Haase, Rt. 2, Mount Nebo Rd., Newtown, Conn., GArden 6-4851.

'32 PACKARD Light 8, 900 Series. Conv. cpe. or sed. body in restorable condition. Need luggage rack also. May accept complete car if reasonable. L. Asker, Rt. 5, Columbia City, Ind.

'40 CADILLAC 60 Special with sunshine roof. Must be in good shape and have a reasonable price. Within 500 miles of Philadelphia. Give full particulars. J. Parisi, 617 Dickinson St., Philadelphia, Pa.

'12 to '22 MODEL T tour. car. Must be in best cond. Send details, price and pics. W. Kinzie, Barris, Ont. Canada.

MODEL T or similar early model car with modern V8 engine and hydraulic brakes. Orig. body important. Send pics and details. Glenn Miller, Box 3465, San Juan, Puerto Rico.

'31 or '32 PACKARD phaeton or '32 victoria conv. Send information and pics if possible. A. C. Backer, 8445 Madeline, St. Louis, Mo.

MOTOR TRUCK CATALOGS, manuals, magazines, and other related items wanted for the years 1900 thru 1948. Will buy, or can trade some old auto material. J. Montiville, 2995 Botanical Sq., Bronx 58, N.Y. LUdlow 4-0113.

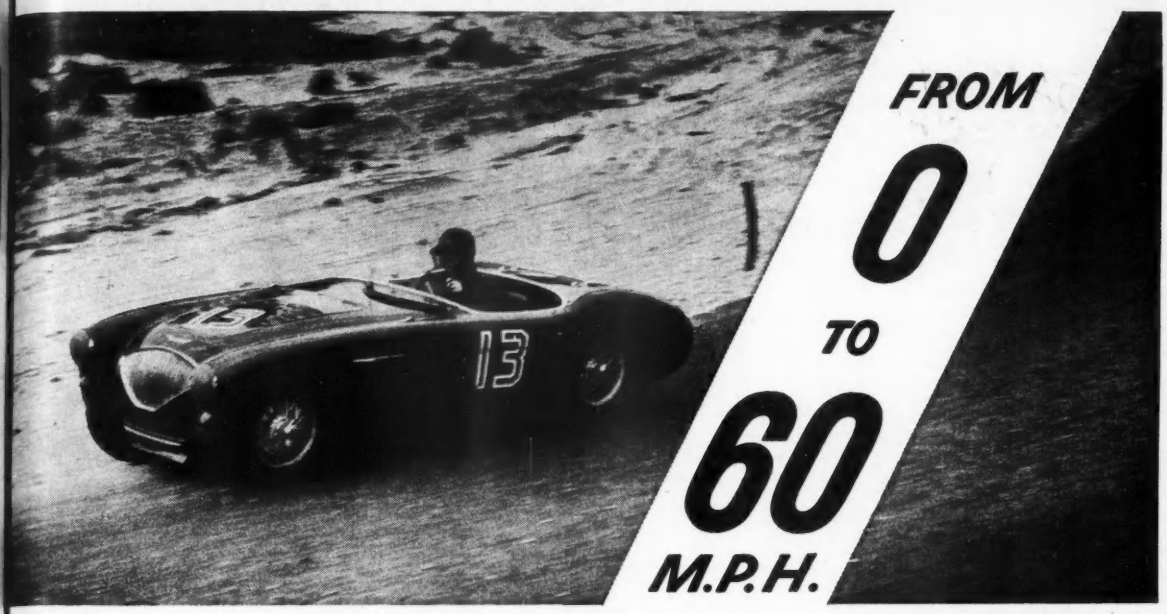
E.M.F. "30," '10 or '11 model restored or in restorable cond. Send pics and price. Will pay for leads. R. Kershaw, P.O. Box 510, Montgomery, Ala.

specifications

1955 U. S. CARS
here's how they compare

MAKE & MODEL	ENGINE											DIMENSIONS												
												Rear Axle Ratios									Steering Wheel Turns—Lock-to-Lock			
	Cylinder & Valve Arrangement	Maximum bhp @ rpm in hundreds	Maximum Torque—lb.-ft. @ rpm in hundreds	Bore & Stroke—in.	Piston Displacement—cu. in.	Compression Ratio	Bhp/cu. in. Displacement	Weight/Power Ratio	Carburetor—1, 2, or 4-barrel	Dual Exhausts	Transmission Available	Conventional	Overdrive	Automatic	Shipping Weight 4-door Sedan	Wheelbase	Widest Tread	Overall Length	Overall Width	Overall Height	Mechanical	Power	Turning Circle—In Feet	Tire Size
Buick 40 Special (j)	V8O	188@48	256@24	3.63x3.20	264	8.4	.71	19.9	2	No	C,A	3.9	NA	3.6	3742	122	59	207	76	60	5	4.5	42	7.10x15
60 Century (k)	V8O	236@46	330@30	4.0x3.20	322	9.0	.73	16.2	4	No	C,A	3.9	NA	3.4	3807	127	59	207	76	61	5	4.5	42	7.60x15
50 Super (k)	V8O	236@46	330@30	4.0x3.20	322	9.0	.73	17.5	4	No	C,A	3.9	NA	3.4	4141	127	62	216	80	62	5	4.5	43	8.00x15
70 Roadmaster (k)	V8O	236@46	330@30	4.0x3.20	322	9.0	.73	18.2	4	No	A	3.9	NA	3.4	4278	127	62	216	80	63	5	4.5	43	8.00x15
Cadillac 62 (q)	V8O	250@46	345@28	3.81x3.63	331	9.1	.75	17.5	4	Yes	A	NA	NA	3.36	4370	129	63	216	80	52	NA	4.3	43	8.00x15
60 (q)	V8O	250@46	345@28	3.81x3.63	331	9.1	.75	18.3	4	Yes	A	NA	NA	3.36	4540	133	63	227	80	62	NA	4.3	45	8.00x15
75	V8O	250@46	345@28	3.81x3.63	331	9.1	.75	20.4	4	Yes	A	NA	NA	3.36	5015	150	63	237	80	64	NA	4.3	52	8.20x15
62 S Eldorado	V8O	270@48	345@32	3.81x3.63	331	9.1	.81	17.8	4	Yes	A	NA	NA	3.36	4809	129	63	223	80	60	NA	4.3	43	8.20x15
Chevrolet 6	6O	123@38	207@20	3.56x3.94	236	7.5	.52	25.4	1	No	C,OD	3.7	4.11	3.55	3125	115	59	196	74	62	5.3	5.3	38	6.70x15
6 w/Powerglide	6O	136@42	209@22	3.56x3.94	236	7.5	.57	23.7	1	No	A	NA	NA	3.55	3220	115	59	196	74	62	5.3	5.3	38	6.70x15
V8	V8O	162@44	257@22	3.75x3.0	265	8.0	.61	19.2	2	No	C,OD,A	3.7	4.11	3.55	3095	115	59	196	74	62	5.3	5.3	38	6.70x15
V8 w/Power Package	V8O	180@46	260@28	3.75x3.0	265	8.0	.68	17.6	4	Yes	C,OD,A	3.7	4.11	3.55	3190	115	59	196	74	62	5.3	5.3	38	6.70x15
Chevrolet 6 Corvette	6O	150@42	223@24	3.56x3.94	236	8.0	.63	18.0	1a	No	A	NA	NA	3.55	2705	102	59	167	72	49	3.9	NA	38	6.70x15
V8 Corvette	V8O	180@46	260@28	3.75x3.0	265	8.0	.68	14.9	4	Yes	C,OD,A	3.7	4.11	3.55	2675	102	59	167	72	49	3.9	NA	38	6.70x15
Chrysler Windsor Deluxe	V8O	188@44	275@24	3.63x3.63	301	8.0	.62	21.9	2	No	C,A	3.73	NA	3.54	3925	126	60	219	79	61	5.5	3.5	44	7.60x15
New Yorker Deluxe	V8O	250@46	340@28	3.81x3.63	331	8.5	.75	16.7	4	Yes	A	NA	NA	3.36	4160	126	60	219	79	61	5.5	3.5	44	8.00x15
300 (r)	V8O	300@52	NL	3.81x3.63	331	8.5	.91	NA	4	Yes	A	NA	NA	3.36	NA	126	60	219	79	59	NA	NA	NA	8.00x15
Clipper Super & Deluxe	V8O	225@46	325@24	3.81x3.5	320	8.0	.69	16.5	4	No	C,OD,A	3.9	3.9	3.23	3700	122	60	215	78	62	4.8	3.8	43d	7.60x15
Custom	V8O	245@46	355@24	4.0x3.5	352	8.5	.70	16.0	4	Yes	C,OD,A	3.9	3.9	3.23	3915	122	60	215	78	62	4.8	3.8	43d	7.60x15
De Soto Firedome	V8O	185@44	245@28	3.72x3.34	291	7.5	.64	21.0	2	No	C,OD,A	3.9	4.3	3.73	3890	126	60	218	78	61	5.5	3.5	44	7.60x15
Fireflite	V8O	200@44	274@28	3.72x3.34	291	7.5	.69	19.9	4	No	C,OD,A	3.73	4.1	3.54	3960	126	60	218	78	61	5.5	3.5	44	7.60x15
Dodge 6 Coronet	6L	123@36	194@16	3.25x4.63	230	7.4	.54	26.5	2	No	C,OD,A	3.9	4.3	3.73	3295	120	59	212	75	60	4	3.5	43	6.70x15
V8 Coronet & Royal	V8O	175@44	240@24	3.63x3.26	270	7.6	.65	19.3	2	No	C,OD,A	3.73	4.1	3.54	3395	120	59	212	75	61	5	3.5	42	7.10x15
V8 Custom Royal	V8O	183@44	245@24	3.63x3.26	270	7.6	.68	18.7	2	No	C,OD,A	3.73	4.1	3.54	3425	120	59	212	75	61	5	3.5	42	7.10x15
V8 w/Super Red Ram	V8O	193@44	245@28	3.63x3.26	270	7.6	.72	18.0	4	Yes	C,OD,A	3.73	4.1	3.54	3485	120	59	212	75	61	5	3.5	42	7.10x15
Ford 6	6O	120@40	195@24	3.62x3.60	223	7.5	.54	26.0	1	No	C,OD,A	3.89	4.11	3.31	3126	116	58	199	76	61	4.5	4.5	41	6.70x15
V8	V8O	162@44	258@22	3.62x3.30	272	7.6	.60	19.9	2	No	C,OD,A	3.78	3.89	3.31	3236	116	58	199	76	61	4.5	4.5	41	6.70x15
V8 w/Power Package	V8O	182@44	268@26	3.62x3.30	272	8.5	.67	17.8	4	Yes	C,OD,A	3.78	3.89	3.31	3236	116	58	199	76	61	4.5	4.5	41	6.70x15
Ford V8 Thunderbird	V8O	193@44	280@25	3.75x3.30	292	8.1	.66	14.8	4	Yes	C,OD,A	3.9	4.1	3.31	2837	102	56	175	70	52	3.4	3.5	36	6.70x15
V8 Thunderbird w/Fordomatic	V8O	198@44	286@25	3.75x3.30	292	8.5	.68	14.5	4	Yes	C,OD,A	3.9	4.1	3.31	2837	102	56	175	70	52	3.4	3.5	36	6.70x15
Hudson 6 Wasp	6L	115@40	158@14	3.0x4.75	202	7.5	.57	26.6	1	No	C,OD,A	4.1	4.4	3.58	3070	114	60	202	78	62	4	3.6	40	6.70x15
6 Wasp w/Twin H Power	6L	128@40	168@18	3.0x4.75	202	8.0	.63	24.5	2	No	C,OD,A	4.1	4.4	3.58	3070	114	60	202	78	62	4	3.6	40	6.70x15
6 Hornet	6L	160@38	264@18	3.81x4.5	308	7.5	.52	21.7	1	No	C,OD,A	4.1h	4.4g	3.15	3480	121	60	209	78	62	4.3	3.9	42	7.10x15
6 Hornet w/Twin H Power (i)	6L	170@40	278@28	3.81x4.5	308	7.5	.55	20.5	2	No	C,OD,A	4.1h	4.4g	3.15	3480	121	60	209	78	62	4.3	3.9	42	7.10x15
V8 Hornet	V8O	208@42	300@20	3.81x3.5	320	7.8	.65	17.9	2	No	A	NA	NA	3.54	3718	121	60	209	78	62	4.3	4	42	7.10x15
Imperial Custom	V8O	250@46	340@28	3.81x3.63	331	8.5	.75	18.2	4	Yes	A	NA	NA	3.54	4565	130	61	223	79	61	NA	3.5	45	8.20x15
Crown	V8O	250@46	340@28	3.81x3.63	331	8.5	.75	NA	4	Yes	A	NA	NA	3.54	●	150	62	243	●	●	NA	3.5	52	8.90x15
Kaiser Manhattan	6L	140@39	215@24	3.31x4.38	226	7.3	.62	23.5	2	No	C,OD,A	3.91	4.55	3.31	3275	119	59	216	75	60	5	3	38	6.70x15
Lincoln Custom & Capri	V8O	225@44	332@25	3.94x3.5	341	8.5	.66	19.0	4	Yes	A	NA	NA	3.07b	4275	123	60	216	78	63	4.3	3.4	46	8.00x15
Mercury Custom & Monterey	V8O	188@44	274@25	3.75x3.30	292	7.6	.65	18.7	4	No p	C,OD,A	3.73	4.09	3.15	3500	119	59	206	78	61	5.3	5.3	42	7.10x15
Montclair	V8O	198@44	286@25	3.75x3.30	292	8.5	.68	17.5	4	Yes	C,OD,A	3.73	4.09	3.15	3480	119	59	206	76	59	5.3	5.3	42	7.10x15
Metropolitan	4O	42@45	62@24	2.58x3.5	73	7.2	.57	44.6	1	No	C	4.56	NA	NA	1875	85	45	150	62	56	2.6	NA	36	5.20x13
Nash 6 Statesman	6L	100@38	155@16	3.13x4.3	196	7.5	.51	30.7	1	No	C,OD,A	4.4g	4.9	3.6	3070	114	60	202	78	62	4	3.6	40	6.70x15
6 Statesman w/Power Package	5L	110@40	155@20	3.13x4.3	196	8.5	.56	28.0	2	No	C,OD,A	4.1	4.9	3.6	3070	114	60	202	78	62	4	3.6	40	6.70x15
6 Ambassador	6O	130@37	220@16	3.5x4.38	253	7.6	.52	26.5	1	No	C,OD,A	4.1	4.4	3.15	3480	121	61	209	78	62	4.3	3.9	42	7.10x15
6 Ambassador w/LeMans Engine	6O	140@40	230@20	3.5x4.38	253	7.6	.56	24.5	2	No	C,OD,A	4.1	4.4	3.15	3480	121	61	209	78	62	4.3	3.9	42	7.10x15
V8 Ambassador	V8O	208@42	300@20	3.81x3.5	320	7.8	.65	17.9	2	No	A	NA	NA	3.54	3718	121	61	209	78	62	4.3	4	42	7.10x15
Oldsmobile 88	V8O	185@40	320@20	3.88x3.44	324	8.5	.57	20.1	2	No	C,A	3.42	NA	3.07	3711	122	59	203	78	61	4.8	4.5	42	7.60x15
Super 88	V8O	202@40	332@24	3.88x3.44	324	8.5	.62	18.8	4	No	C,A	3.42	NA	3.23	3762	122	59	203	78	61	4.8	4.5	42	7.60x15
98	V8O	202@40	332@24	3.88x3.44	324	8.5	.62	19.4	4	No	C,A	3.42	NA	3.42	3864	126	59	212	78	61	4.8	4.5	42	7.60x15
Packard Patrician	V8O	260@46	355@24	4.0x3.5	352	8.5	.74	16.8	4	Yes	A	NA	NA	3.07e	4355	127	61	217	78	62	4.8	3.8	45e	8.00x15
Caribbean	V8O	275@48	355@24	4.0x3.5	352	8.5	.78	16.1	4f	Yes	A	NA	NA	3.07e	4355	127	61	217	78	62	4.8	3.8	45e	8.00x15
Plymouth 6	6L	117@36	194@16	3.25x4.63	230	7.4	.51	26.9	1	No	C,OD,A	3.73	4.1	3.73	3129	115	59	204	75	60	4	3.5	40	6.70x15
V8	V8O	167@44	231@24	3.56x3.25	260	7.6	.64	19.5	2	No	C,OD,A	3.73	4.1	3.54	3246	115	59	204	75	60	5	3.5	41	6.70x15
V8 w/Power Package	V8O	177@44	231@28	3.56x3.25	260	7.6	.68	18.4	4	Yes	C,OD,A	3.73	4.1	3.54	3246	115	59	204	75	60	5	3.5	41	6.70x15
Pontiac Chieftain (l)	V8O	173@44	258@24	3.75x3.25	287	7.4	.60	19.7	2	No	C,A	3.64	NA	3.08	3511	122	59	203	75	61	5.1	4.8	42	7.10x15
Star Chief (l)	V8O	180@46	264@24	3.75x3.25	287	8.0	.63	19.9	2n	No	C,A	3.64	NA	3.23	3556	124	59	210	75	61	5.1	4.8	43	7.10x15
w/Power Package	V8O	200@46	278@28	3.75x3.25	287	8.0	.70	17.9	4	No	C,A	3.64	NA	3.23	3556	124	59	210	75	61	5.1	4.8	43	7.10x15
Rambler 2-door (m)	6L	90@38	150@16	3.13x4.25	196	7.3	.46	28.0	1	No	C,OD,A	3.77	4.4	3.3	2515	100	55	178	74	59	4.25	NA	36	6.40x15
4-door (m)	6L	90@38	150@16	3.13x4.25	196	7.3	.46	29.0	1	No	C,OD,A	3.77	4.4	3.3	2630	108	55	186	74	59	4.25	NA	38	6.40x15
Studebaker Champion	6L	101@40	152@16	3.0x4.38	186	7.5	.54	28.1	1	No	C,OD,A	4.1	4.56	3.54	2800	117	57	198	71	57	4.3	4.3	39	6.70x15
Commander (o)	V8O	162@45	250@28	3.56x3.25	259	7.5	.63	18.9	2	No	C,OD,A	4.1	4.55	3.54	3095	117	57	198	71	61	4.3	4.3	39	6.70x15
President (o)	V8O	185@45	258@28	3.56x3.25	259	7.5	.71	17.3	4	No	C,OD,A	3.92	4.27	3.54	3205	121	57	206	71	61	4.3	4.3	41	7.10x15
Willys Bermuda & Custom	6L	115@36	190@18	3.31x4.38	226	7.3	.67	24.1	1	No	C,OD,A	3.54	4.1	3.31	2778	108	58	190	72	60	4.8	4.5	38	6.40x15
Station Wagon	6F	90@42	135@16	3.13x3.5	161	7.6	.89	31.4	1	No	C,OD	4.88	5.38	NA	2831	104	61	176	72	72	4.8	4.5	36	6.40x15

Notes: O—Overhead valve, L—L-head, F—F-head, C—Conventional, OD—Overdrive, A—Automatic, NA—Not Available, ●—Not Listed
a—3 carburetors used, b—3.31 on air-conditioned car, c—3.23 and 3.54 optional, d—41 with power steering, e—43 with power steering, f—2 4-barrel carburetors, g—4.1 optional, h—4.4 optional, i—170 hp is standard on Custom models, optional on Super models, j—7.5 compression ratio with conventional transmission, k—8.4 compression ratio with conventional transmission, l—either engine available with either model, m—7.5 compression ratio optional, n—4-barrel optional, o—8.1 compression ratio optional, p—Monterey and Custom station wagons have dual exhausts, q—270-hp engine optional, r—3.54, 3.73, 3.91, or 4.1 optional rear axle ratios.



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The Austin-Healey '100' offers you today's outstanding combination of performance and value. For less than $3,000 you get light, precise steering, pool-table flat cornering and stable four-footed roadability. These advantages plus an excellent weight-to-power ratio enable the Austin-Healey '100' to dominate Class D cars and many larger.

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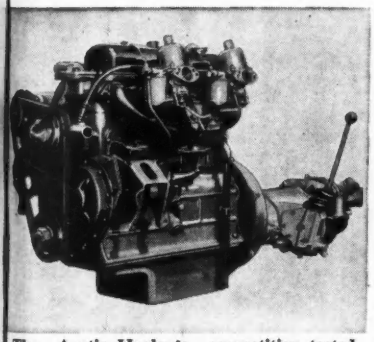
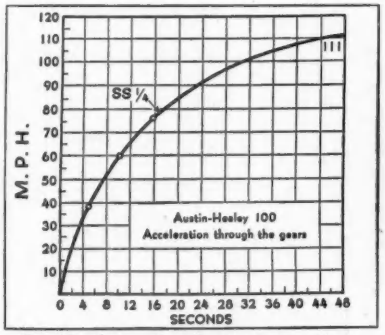
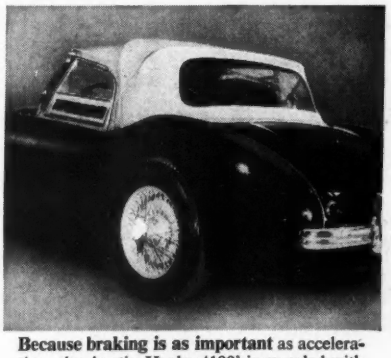


The Austin-Healey's competition-tested engine develops its maximum torque at a modest 2,000 rpm for top acceleration through the gears. And not only is the engine reliable but it's easy to maintain too, with parts (including a modification kit) quickly available from 14 Austin distributors and 350 dealers.



Specifications at a glance: Four cylinder, overhead valve engine; displacement—2660 cc; 90 bhp at 4000 rpm; wheel base—90 inches; curb weight 2150 lbs.; distribution 49%/51%; three forward speeds plus overdrive (synchromesh); steering 2½ turns lock to lock; brake area 145 square inches; average fuel consumption, 25 mpg.



Because braking is as important as acceleration, the Austin-Healey '100' is muscled with 11-inch, hydraulic brakes that provide positive, no-fade deceleration. On top of all this the car comes equipped with custom features like overdrive, heater, tachometer, twin carburetors and knock-on wire wheels at no extra cost. For more details, use coupon below.

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